

# The United States MILLER

## AND THE MILLING ENGINEER.

Fourteenth Year.—No 6.

MILWAUKEE, JUNE, 1889.

Subscription Price, \$1.00 Per Year.

**SIMON ON ROLLER MILLING.**

Latest Development of Roller Flour Milling as viewed by the Leading Milling Engineer of Great Britain. Illustrated by its application to the recently completed great Flour Mills at Rio de Janeiro, South America.

AN IMPORTANT PAPER READ BEFORE THE BRITISH INSTITUTION OF MECHANICAL ENGINEERS AT LONDON IN APRIL '89.

[By HENRY SIMON, M. E., of Manchester, England.]  
(Concluded from May Number.)

**ROLLER MILL MACHINERY.**—A few of the principal machines, which have played an all-important part in the realization of the great change in the manufacture of flour by rolls instead of stones, are represented in their most recent development in Figs. 9 to 13. In Fig. 10 is shown a roller mill with four fluted rolls, each 32 in. long and 10 in. in diameter. Fig. 11 shows a three-high roller mill with three smooth rolls, each 32 in. long and 10 in. in diameter. "Reform" purifiers for middlings, built in pairs with oscillating sieves, are shown in Fig. 12; and centrifugal dressing machines in Fig. 13.

Roller mills, which have replaced grinding stones are of two kinds, and are used for two distinct purposes; namely, break mills with fluted rolls, for extracting the kernel of the wheat from the bran; and reduction mills with smooth rolls, for reducing to flour the broken kernel which constitutes the middlings and semolina. In the Rio mill, four-roller mills are used for the breaks, and three-high roller mills for the reductions; in both cases the rolls are made of the hardest chilled iron.

**FOUR-ROLLER MILL.**—In Fig. 10 is shown a transverse section of the four-roller break mill with fluted rolls, for breaking the kernel of the wheat from the bran. The two pairs of rolls are entirely independent of each other, and if required can be used for grinding two distinct qualities of material. The course of the material through the machine is indicated by the arrows, starting from the feed hopper and feed roller B, which are provided with a feed regulator C adjusted by hand, and an automatic feed-plate D balanced by a spring. The top grinding roll E, which runs at a higher speed, revolves in fixed bearings, and the slow-running lower roll F in bearings carried in the adjustable levers G. For throwing the rolls apart a combined lever and eccentric H is provided, with which is connected a link arrangement shown at J, whereby a clutch on the feed roller is thrown out of gear, and thus the flow of material is stopped. The surfaces of the rolls are kept clean by scrapers K. A magnified section of the fluted surfaces of the rolls is shown in Fig. 9.

The balanced automatic feed-plate D is adjusted with a sufficient spring pressure to give the proper feed upon the roller mill when opened by a certain weight of feed in the hopper at the back of the plate. The action of the feed-plate keeps the quantity of feed in the hopper, and consequently the feed upon the roller-mill, almost constant; if the feed increases temporarily the balanced plate opens till the quantity in the hopper is reduced; or if the feed decreases, the plate closes until the quantity is increased to the proper amount, thus keeping practically regular the amount of feed passing over the feed

roller to the grinding rolls E and F. The advantage gained by having the lower roll F adjustable is that all wear in the working parts connected with the adjustment is taken up by the weight of the roll itself; and the distance apart of the working or grinding surfaces, which is the most important point in any roller-mill, can be absolutely assured by the adjusting gear. The handwheels L are for setting exactly each end of the lower roll F, so that its surface may always be truly parallel with that of the upper roll E. The boxes M contain spiral springs, which can be set to any required tension and so give the requisite grinding pressure. As

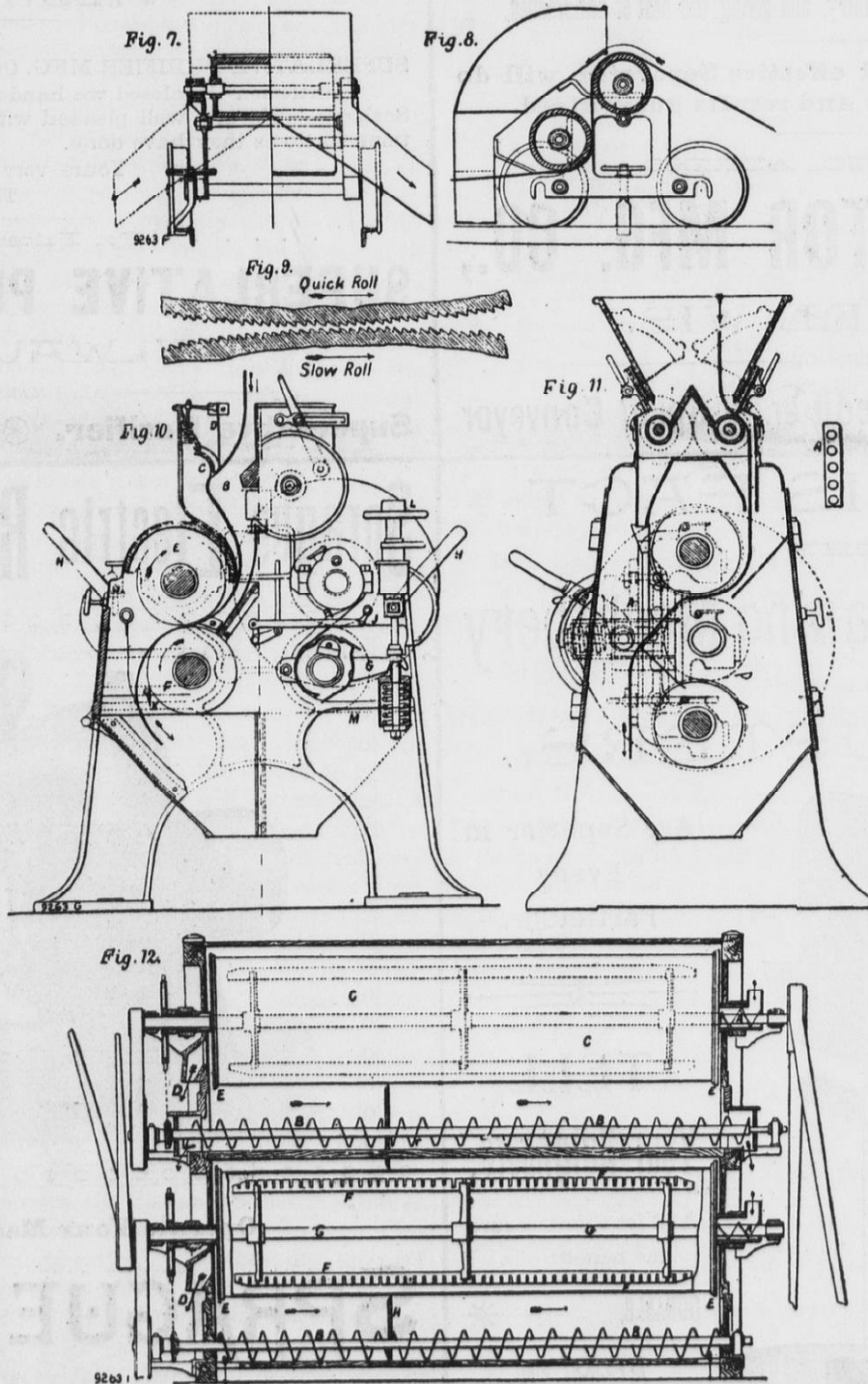
mill are adopted for throwing the rolls apart, for adjusting independently each end of the upper and lower rolls, and for effecting these adjustments without interfering with the grinding pressure. Two distinct materials can also be treated in this machine: the feed passing between the upper and center rolls, falls thence through the spaces between the vertical tubes A into the under hopper of the mill, while the material to be ground between the center and lower rolls falls through the inside of the tubes. This arrangement of cross channels has the appearance of a gridiron in front elevation. The principal advantages of the three-high roller

by means of the feed roller B, the middlings are fed upon an oscillating sieve C, which is hung from the suspension rods E, and is moved rapidly to and fro by eccentrics on the shaft D. Above and close to the silk of the sieve is fixed the grid of channels F. Underneath the sieve the traveling brush G keeps the mesh of the silk clear. Exhausting fans are placed at H H, inside an endless traveling filter cloth J. The middlings to be purified are fed in a continuous stream upon the head of the oscillating sieve, and throughout the whole length of their travel along it are subjected to the action of air currents passing upwards through the silk direct to the fans H. The intensity of the air currents is so regulated as to allow all the good pure middlings to fall through the silk mesh into the worm conveyor K; but the semi-pure middlings are lifted up by the suction of the fans, the object of the grid of channels F being so to contract and intensify the air current immediately it leaves the silk that the unsound middlings shall be lifted clear of the silk and deposited in the channels themselves, whilst all light branny particles still remaining in the air are deposited on the under surface of the filter cloth J, traveling overhead: thus the air passing into the fan and thence back to the mill is free from dust. By the oscillation of the sieve the unsound middlings deposited in the channels F are carried into one main central trough, which delivers them at the tail end of the machine. The stive and branny particles are continuously removed from the filter cloth by the action of a portion of the strong blast discharged from the fans H, supplemented by suitable beating apparatus in the chamber L, and are delivered thence by the conveyer M.

**CENTRIFUGAL DRESSING MACHINE.**

In Fig. 12 is shown a longitudinal section of a double centrifugal dressing machine. Centrifugal machines have almost entirely replaced the large and cumbersome reels which not many years ago were the only machines at the miller's disposal for separating the flour from the other products of grinding. A two-high machine is here shown, because this form is the most useful in mills of large output, not only on account of the saving in floor space, but also because the upper machine is enabled to feed the one beneath it. The material to be dressed is fed by a worm conveyor at A into the interior of the dressing cylinder C. The flour or other product dressed through the silk or wire clothing of the cylinder is collected by the worm B underneath; while material too coarse to pass through the clothing is discharged from the end of the cylinder through the spout D. The silk or wire clothing is stretched tightly upon a cylindrical frame-work, being laced together along its longitudinal seam, and secured by cords at its ends to encircling rings E. The cylinder carrying the silk revolves slowly, whilst inside it revolves rapidly the finger beaters F mounted on the shaft G. The construction of these beaters is such that, whilst offering but a slight resistance they can be twisted more or less so as to hasten or retard the travel of the material along the cylinder. Transverse partitions are frequently added underneath the cylinder, as shown at H, so

CONTINUED ON PAGE 61.



seen from Fig. 7, the spring pressure is so applied as to be in no way affected by the distance at which the rolls are set apart. Power is transmitted by belt to the upper roll of each pair; and the correct differential speed of the lower roll is maintained by double helical toothed wheels running in oil-tight casings.

**THREE-HIGH ROLLER MILL.**—In Fig. 11 is shown a transverse vertical section of the three-high roller reducing mill with smooth rolls, for reducing the broken grain to flour. The center roll here runs in fixed bearings, and the upper and lower roll are carried in adjustable levers; and similar means to those in the four-roller

mill are that, the downward grinding pressure on the center roll is counteracted by an equal upward pressure, so that the friction due to pressure is eliminated in the bearings of the center roll; and there are thus only four bearings under pressure, as against eight in the four-roller mill. Furthermore the three-high roller mill occupies but little floor space.

**PURIFIER.**—In Fig. 13 is shown a longitudinal section of the "Reform" purifier, the use of which is of vital importance in modern milling, for by its application a perfect purification of all middlings, from flour to the coarsest semolina, is possible without waste. From the feed hopper A,

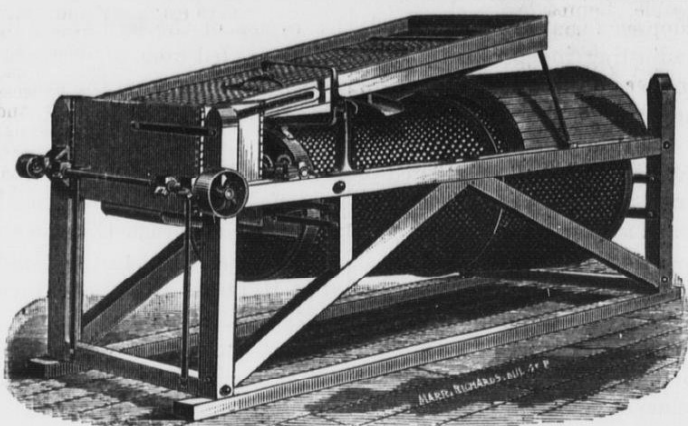


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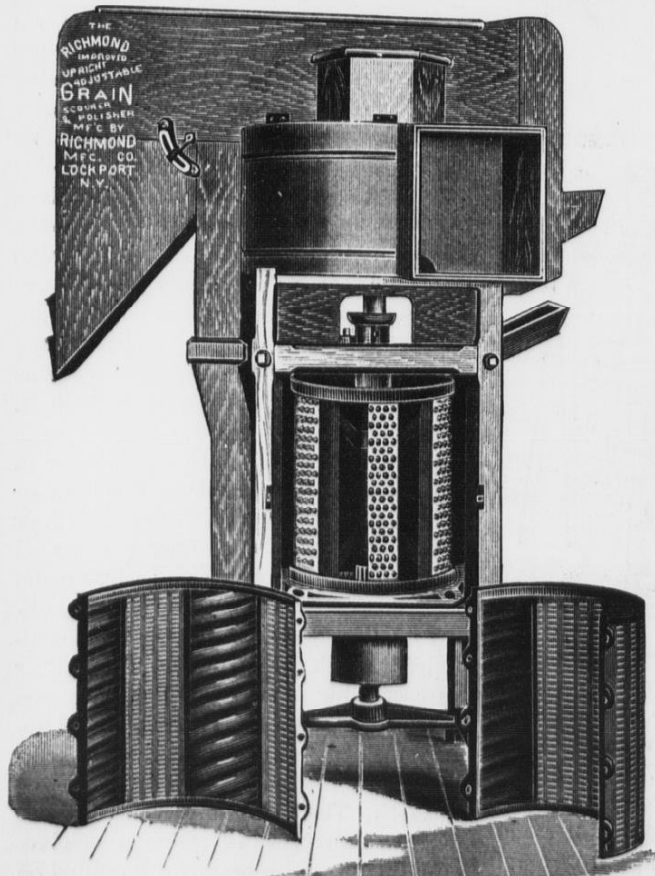
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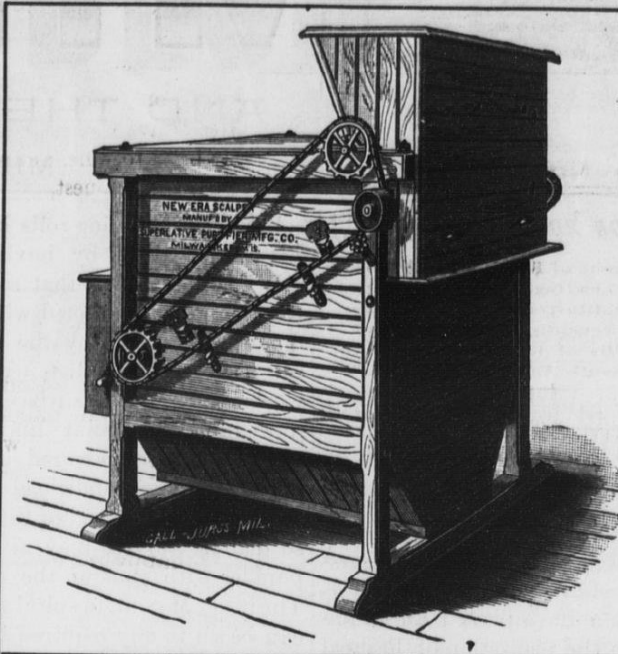
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## \* TESTIMONIAL. \*

EVANSVILLE, IND., June 6th, 1889.

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Yours very truly,

THE HEILMAN ROLLER FLOUR MILLS.

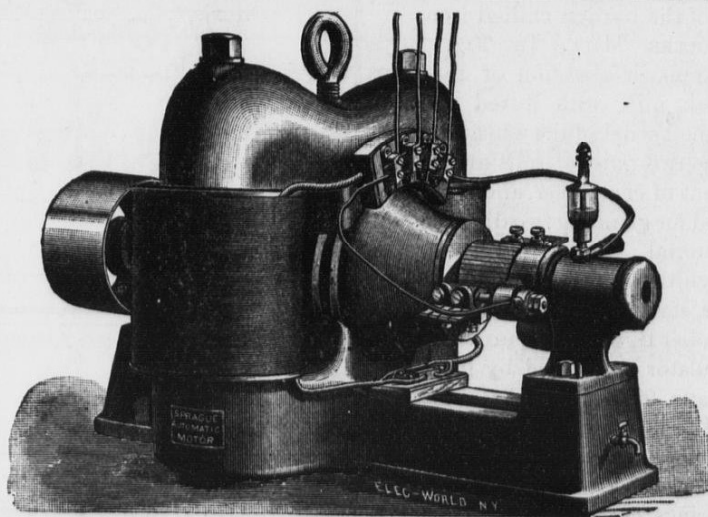
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UNITED STATES MILLER  
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

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[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, JUNE, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. You will thereby oblige not only this paper, but the advertisers.

IT is said that a tupentine well has recently been discovered in Laurens Co., Ga., near Donaldson. Next.

THERE are some persons who would like to know what has become of the "proxies" given by the millers of Missouri.

NEBRASKA State Millers' Association will meet at Willard's Hotel, Omaha, Neb., June 18 and 19. D. H. Harris, of Bennet, Neb., is Secretary.

NOT having discovered anything worth kicking at, during the past month, our facetious correspondent, "The Arizona Kicker, Jr.," has retired to take a quiet nap.

THE title of *The Dominion Milling and Mechanical News*, of Toronto, Canada, has been changed to *The Electrical and Mechanical Milling News*. It will endeavor to represent electrical manufacturing interests in Canada.

THE first two carloads of new wheat of the crop of 1889 was received in San Francisco from Tulare and Stanislaus counties, May 24. The earliest delivery heretofore was in 1875, June 2; and the latest in 1863, July 25.

THE Millers' Convention has brought to light the fact that there are some big legal fights on hand. The most important of these is in regard to roller mills; and a close second is the war of the Dust Collector machines. There will no doubt, in view of these circumstances, be a rush of millers not members of the association now, to get under the mantle of its protection at the earliest possible moment.

CANADIAN millers are becoming somewhat aroused over the tariff question as applied to wheat and flour. It is proposed to call a meeting to consider the matter. If they expect to accomplish anything they will find that simply meeting and passing resolutions will not be all that is required. There must not only be thorough organization, but committees composed of men with energy, brains and MONEY to work with.

WE think our readers will concede that there is a good deal of very interesting matter in this number of the U. S. MILLER AND THE MILLING ENGINEER, and we have every reason to believe that succeeding numbers will be pregnant with facts of grave importance to the trade. In this connection, we would rise to remark that, if you are not now a regular subscriber, you will score a point by getting "on the list" at the earliest date possible.

OUR readers will find our NEWS department worth careful attention. It is boiled down from items received from our own correspondence to which is added condensed items from our milling and other exchanges from all parts of the country. Our aim is to print the substance of the news in such a shape as to be of the greatest practical service to our

readers. In this connection we would say to all of our readers, send us any items of trade news that you can.

THERE is a painful subject well known to members of the Millers' National Association and the representatives of the milling press, on which we ought perhaps to make some comments, but we prefer to throw the mantle of charity over the matter and consign it to oblivion. Suffice it to say that we believe the light of day has been thrown on some things during the Milwaukee Convention, the effect of which will be to bind together more firmly than ever before the honest, efficient officers and members of the Association and the ENTIRE MILLING PRESS of the UNITED STATES.

THE annual excursion of the millers and flour merchants of St. Louis and vicinity, with their families and friends, took place May 23, in which about 2,000 persons took part. The party went down the river to Montesano, where the picnic took place. Music, dancing, singing and feasting was the order of the day, and at 11 p. m. 2,000 happy and tired people landed again in St. Louis. The publisher of this Journal returns thanks for invitation sent and regrets exceedingly his inability to form one of the party. Success to St. Louis millers and flour dealers, and may they enjoy many more annual excursions.

THE most appalling disaster which was ever experienced in this country, occurred at Johnstown, Pa., June 1, at which time the whole town of 1,500 houses or more was completely destroyed by the bursting of the dam on the Conemaugh river, caused by an immense fall of rain. The artificial lake formed by the dam—over a mile in width, three miles long and 100 feet deep—was emptied into the town, sweeping it out of existence and destroying lives estimated as high as 10,000. The devastation in the valley was terrible. At Johnstown it was complete.

A rough estimate places the property loss at from fifteen to twenty millions of dollars. The loss to the railroad alone is placed at not less than a million and a half. The loss of life is not yet known, but is certainly more than ten thousand.

THE great June floods in the East are represented to have damaged the Chesapeake and Ohio Canal to such a great extent that it will be abandoned. A century ago, President Washington regarded the completion of this waterway as the great natural highway of the future which would not only fully meet the demands of commerce, but would be an imperishable bond of union of the States. "Perhaps" says the *N. Y. Commercial Bulletin*, "no more striking presentation of the national growth, the progress of invention and the evolution of commerce and transportation could be made than that suggested by the contrast between Washington's conception of this connecting link between the Chesapeake and the Ohio as the great highway of American commerce, and the actual development that preceded and accompanied the execution of this project, and is now undisturbed and unaffected by the report that the canal will probably be abandoned in preference to paying a bill of repairs."

## THE NATIONAL FLOWER.

THE selection of some of our native flowers to be known as a National flower has agitated a considerable portion of the public for some time. It is not surprising. Men like, occasionally, to turn aside from the practical things of life, and in a sentimental spirit recall the memories of youth—the days of love, of hope and romance. For a brief period they yearn to forget even their puts and calls and per cents, and take to the country and consider the flowers of the field. Anent this subject an Ohio brother writes as follows:

"The mere mention of the nation's flowers, the arbutus, the golden rod, the honeysuckle, the wake robin, the dogwood, the apple blossoms, the dandelions, the clover, the heartsease, and even the pussy willows, brings with each memories tender, sad or sacred, and the haunting sense of hunger for one hour of the days of youth and vigor and carelessness when the frost was on the pumpkin, the breezes rustling the corn tassels, the golden rod waving in the fence corners and the yellow billows of wheat rolling away under the autumn sun, while the bobolink bubbled over in boisterous hilarity, and the sweetheart peeped with shy and roguish eyes from out the shadow of her calico sun bonnet.

To what New England man does not the arbutus bring recollections of the seasons when the earth awoke from her long winter sleep to the low soft note of the bluebird and the pipings of the robin from the bare limbs of the apple-trees?

Those were the days before one discovered the saw-dust in the doll, before the liver made itself disagreeable, rheumatism stuck a prod under a knee-cap or a shoulder-blade, a crow left tracks upon the face or heart, and when the bile trotted along its usual course without blue mass for a driver.

So it is not surprising that grown-up men take an interest in the wild flowers of their spring-time, except the wild oats, and like to talk about a national flower for America.

Of course, however, the wild oats are barred, though they are the most general flowers in the country, and could come nearer filling the bill in that respect.

Lapsing into poetry Miss Rachel Littell writes the pretty little sketch below:

## COLUMBIA'S FAVORITE FLOWER.

Fair France has her Fleur-de-lis,  
And Albion has her rose;  
And braw are the hearts of Scotia  
Where the silk-plumed thistle blows.

The thistle, the lily, the rose,  
The shamrock, the Kasier's bloom,  
Have gleamed o'er many a battle  
Where brave men met their doom.

But "Land of the brave and free,"  
What blossom is thine alone?  
What emblem of freedom and peace  
In the light of thy glory is known?

Columbia, on banners thine  
And on thy scrolls and shields,  
Engrave the graceful maize flowers  
As they waive in all thy fields.

From ocean unto ocean,  
Each summer in thy land,  
The serried ranks of Indian corn  
A peaceful legion stand.

The rustling of their bright, green swords,  
The nodding of their plumes,  
Each year pledge new our freedom  
On a scroll that God illumines.

In all our Nation's record  
The maize has been the sign  
Of peace—of hope—of freedom;  
Now name it, Columbia, thine.

A miller of Teutonic extraction caps the climax by writing

"Say! Vhat's der matter wid wheat fur der National Flour? I dink dot vhas all right."

## MORE TROUBLE.

## INTERESTING TO USERS OF ROLLER MILLS

BIG 4! BIG 5! BIG 17!

What Will Be Done About It?

IN our last issue mention was made of the decision just rendered by the U. S. Circuit Court for Eastern district of Mich. in the case of *The Consolidated Roller Mill Co. vs. Wm. A. Coombs*. The following circular has recently been issued by *The Consolidated Roller Mills Co.*, and expresses pretty clearly its views and intentions:

## AN OPEN LETTER TO MILLERS.

CONSOLIDATED ROLLER MILL CO.  
No. 53 Honore Block,  
204 Dearborn Street.

CHICAGO, ILL., June 6, 1889.

To the Millers of the United States:

We are the owners of a very large number of patents for various improvements in Roller Mills, among which we mention more particularly the following:

W. D. Gray.....No. 222,895	John Stevens.....No. 236,643
"....." 228,525	"....." 240,252
"....." 235,761	"....." 252,705
"....." 238,677	"....." 268,567
"....." 251,217	"....." 304,468
"....." 261,337	U. H. Odell, Re-issue....." 10,139
"....." 264,454	U. H. Odell....." 260,225
"....." 266,488	"....." 260,226
"....." 271,331	"....." 260,705
"....." 273,065	"....." 264,559
"....." 283,339	"....." 306,945
"....." 303,369	"....." 330,927
"....." 311,829	D. W. Marmon....." 274,508
"....." 337,161	"....." 277,307
"....." 339,162	"....." 275,335
"....." 339,163	"....." 276,440
"....." 339,164	"....." 281,707
F. Wegman, Re-issue....." 10,579	Marmon & Warrington, Re-issue....." 10,493
F. Wegman....." 294,418	"....." 266,490
R. Birkholz....." 255,715	"....." 275,055
"....." 257,647	"....." 277,525
H. Birkholz....." 260,623	"....." 305,320
S. R. Campbell....." 247,301	
Wescott & Karns....." 258,832	
John Stevens....." 221,371	
"....." 225,770	
"....." 230,834	
"....." 236,104	

Besides a large number of less important patents, which need not be named in this connection.

You will observe at a glance that the above list contains all the patents of Gray, Odell, Stevens, Marmon, and others, who are universally recognized as the leading milling

engineers of this country, and who were the pioneers in the improvement and construction of modern roller mills.

We believe these patents effectually cover every valuable feature of the modern roller mill; and we doubt the possibility of building a successful roller mill—such a machine as the requirements of the trade demand—without infringing some of them.

Four of the leading mill furnishers of the country, viz: E. P. Allis & Co., of Milwaukee, Wis.; Stilwell & Bierce Mfg. Co., of Dayton, Ohio; The John T. Noye Mfg. Co., of Buffalo, N. Y., and Nordyke & Marmon Co., of Indianapolis, Ind., recognizing the scope and strength of our combination of patents, and desiring to afford their customers absolute security in the use of their Roller Mills, have taken out licenses from us, but there remain a large number of unlicensed Mill Furnishers, who with an utter disregard of our rights have appropriated our inventions, and are manufacturing and selling Roller Mills which grossly infringe our patents.

We propose to establish and maintain our vested rights under these patents, and to that end have brought a number of suits in various Districts of the U. S. Circuit Court, some of which have been carried to a successful conclusion; others are still pending, and none of which have been decided against us.

The first of these suits we will refer to was brought by U. H. Odell *et al.*, against Stout, Mills & Temple in the U. S. Circuit Court for the Southern District of Ohio, before District Judge Sage, and Justice Matthews of the U. S. Supreme Court. The defendants manufactured the "Livingston Roller Mill," and the suit was for infringement of Odell's Re-issue Patent No. 10,139. The patent was sustained and the defendant's machine held to infringe it, and its manufacture was discontinued.

The next case brought to a decision was that of *The Consolidated Roller Mill Co. vs. The Miller Mfg. Co. et al.*, in the U. S. Circuit Court for the Northern District of Ohio. The patents sued upon were the Gray Patents No. 222,895 and 238,677. The defendants entered an appearance in the case, and at first seemed confident of being able to make a successful defense, but subsequent and more thorough investigation convinced them of the hopelessness of their case, whereupon they admitted the validity of our patents and their infringement of the same, and consented to a decree and perpetual injunction against them, and retired from the business of making Roller Mills.

The next case to which we will now refer (and the one which has attracted the most attention, because five prominent manufacturers of Roller Mills are understood to have joined in the defense, which was most stubbornly, thoroughly and ably conducted) was that of *The Consolidated Roller Mill Co. vs. Wm. A. Coombs* in the U. S. Circuit Court for the Eastern District of Michigan. Mr. Coombs owns a mill at Coldwater, Mich., in which he was using the "Mawhood Roller Mill," manufactured by The Richmond City Mill Works, of Richmond, Ind., and suit was brought against him for infringement of the Gray Patent No. 222,895, and two other patents of minor importance. It was evident there could be no escape from the charge of infringement provided the Gray Patent was sustained, hence a most vigorous, thorough and determined effort was made to break down his patent and have it declared invalid for the various reasons set up in the defense. We need not go into details, which are accessible to all who care to investigate, but will simply state that the Gray Patent No. 222,895, which relates to the most necessary and valuable adjustment in Roller Mills, and which we think is more generally infringed than any other, was broadly and unequivocally sustained in each of its claims, and the Mawhood machine was held to infringe the same, and a decree for an injunction and reference to a Master in usual form was granted. In discussing this question of infringement, after having passed upon the validity of the patent, the Court used the following language: "In short, we regard the defendant's entire machine as simply a rearrangement of the Gray combination, for the obvious purpose of an attempt to avoid his patent."

We have several other suits pending, which we shall push to a hearing at the earliest possible day.

We have not been fighting our battles in the newspapers, but in courts of competent jurisdiction, whose decisions must be respected; neither have we annoyed the millers with threats or proclamations of any sort, but having established our rights in the courts, we shall now compel a full recognition of them, and we feel confident that your sense of justice and fair dealing will approve of our course.

Millers purchasing or using Roller Mills that have been or may be hereafter licensed by us have nothing to fear in this connection, but all who purchase or use unlicensed infringing Roller Mills do so at their own proper peril.

Very Respectfully submitted,  
CONSOLIDATED ROLLER MILL CO.

The Consolidated Roller Mill Co. have also sent us the following letter from their counsel which we take the liberty of publishing:

(36 Moffat Block, Detroit, Mich., June 7, 1889.)

THE CONSOLIDATED ROLLER MILL CO.,  
CHICAGO, ILLS.

GENTLEMEN: You ask my opinion—  
1st. As to your rights under the Gray Patent No. 222,895, under which you recently recovered a decree affirming the validity of the patent, and its infringement by the Mawhood Roller Mill, and by Mr. Coombs, the defendant, and

2nd. As to whether your rights are in any manner affected by bonds of indemnity given by manufacturers to millers using their infringing machines.

As to the first, I reply that you have by that decree, establishing the validity of the patent and its infringement, secured the right to have injunctions on application, at

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SOLE MANUFACTURERS OF

# THE RELIANCE PURIFIER

"A Model of Perfection."

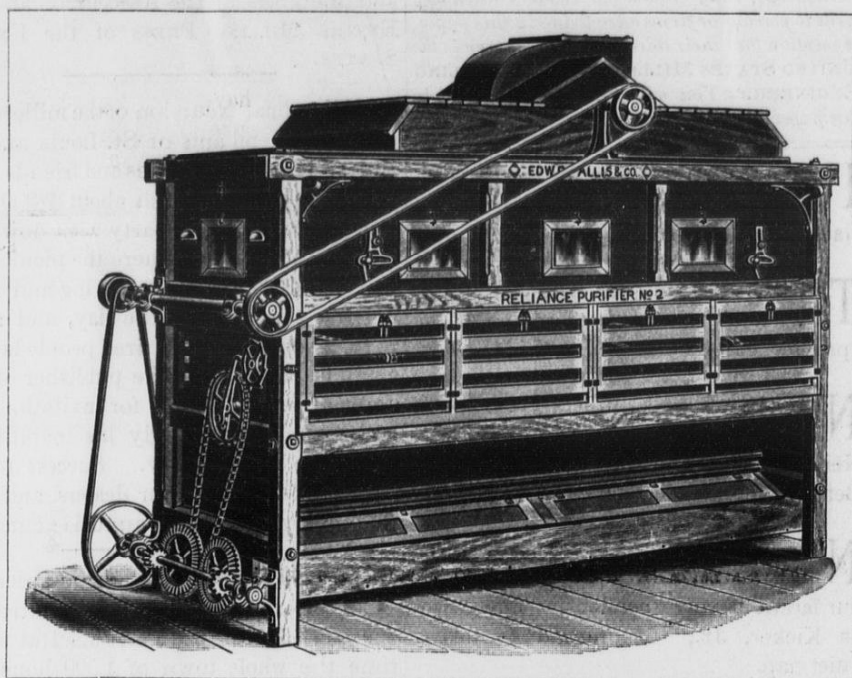
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Device Ever Adopted.**

**ALL RESULTS ARE GUARANTEED.**

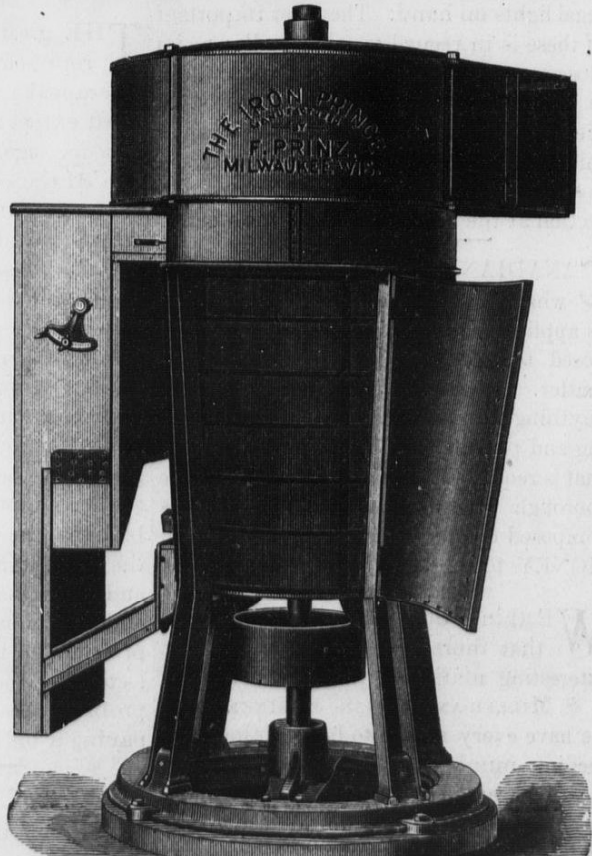
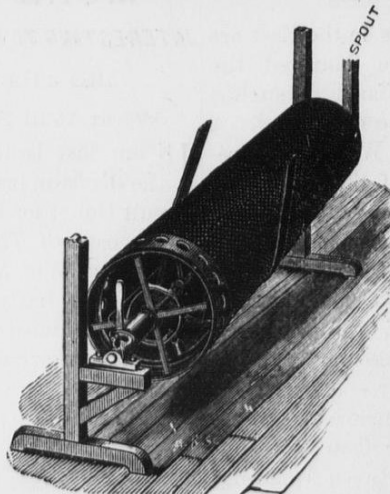
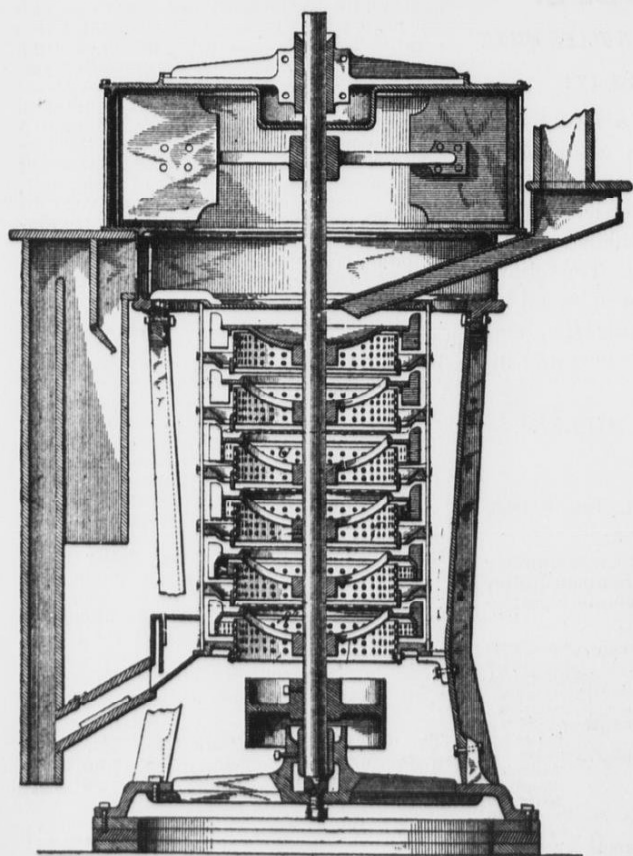
SEND FOR OUR LATEST CATALOGUE OF FLOUR MILL MACHINERY.

**THE GREATEST SUCCESS OF THE DAY!**

**THE PRINZ GRAIN CLEANING MACHINERY.**



**W**e are receiving a large number of letters from millers throughout the country, who have tried and proved this machine. They all unite in the verdict that it is the best purifier in every respect ever offered to millers. Write for Circular of Testimonial Letters.



KIEL, Wis., January 21, 1889.

The Prinz & Rau Mfg. Co., Milwaukee, Wis.:

GENTLEMEN—The No. 2 Iron Prince Smutter which I bought of Mr. Prinz over two years ago has been very satisfactory to me, as it does the best work of any smutter that I ever saw work. It has caused me no trouble whatever, and if any person would like to see it run or know anything more about it, you may refer him to me.

Yours truly,

HENRY STOLL

NEW TROY MILLS,  
NEW TROY, MICH., May 20, 1889.

The Prinz & Rau Mfg. Co., Milwaukee, Wis.:

GENTLEMEN—We have had your cockle machine running for some time, and it certainly is a grand success, and here is your money for same. I am perfectly satisfied with it, and can highly recommend it to any one.

Yours respectfully,

F. H. MORLEY

**The Iron Prince and the Prinz Imp'd Cockle Machine**

MANUFACTURED BY

**THE PRINZ & RAU MFG. CO.,**

Write for Catalogue and Discount.

**MILWAUKEE, WIS.**

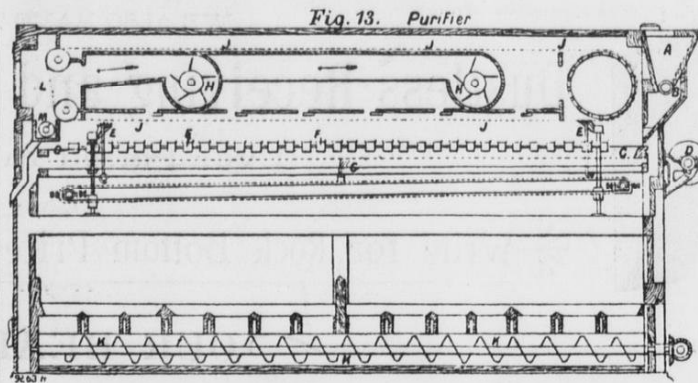


as to separate two or more sizes of flour and middlings along the length of the machine.

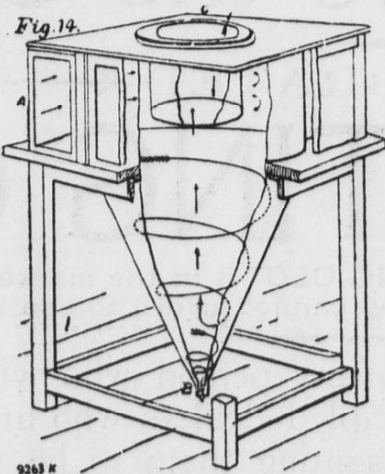
**THROWING-OFF CARRIAGE.**—In Figs. 7 and 8 is shown a throwing-off carriage for delivering grain to either side from a traveling band.

**MILLING PROCESS.**—From the cleaned wheat bins the grain is elevated to rotary graders, which sort it into three sizes. Each sort passes between fluted rolls set with great nicety so as to break every individual wheat grain as near as possible along its crease. The broken grain is next lifted into centrifugal dressers, which take out a small percentage of flour that is contaminated with the dirt released from the crease or rubbed from the surface, and has also larger particles mixed with it. The broken wheat thence passes to other roller mills, each with finer flutes, which further open out the berry and extract the kernel until the bran is clean. After each break the granulated kernel is sifted and separated from the bran by rotary scalping or sifting machines, the aim being to produce the smallest possible percentage of flour, and the largest possible percentage of groats and granular particles, technically known as middlings or semolina. This process is continued through a series of six sets of fluted roller mills, each set being followed by scalpers. The duty of the last set of rolls, which are very finely fluted, is to clean from the bran as far as possible the last adhering portions of the kernel. The main object of the gradual reduction is to separate the kernel from the bran in as large particles as possible, with a view to the greater facility thereby secured for freeing it from the bran and germinal impurities, and afterwards reducing it into flour of the highest quality, uncontaminated by the presence of particles of bran. Any flour made during the breaking process is necessarily of rather a low quality, being contaminated by admixture of bran and germ, &c., which it is impossible afterwards to separate from it entirely. In recent mills the writer has succeeded in reducing the proportion of this break flour to as little as 5 per cent. of the total flour produced. So excellent a result has been attained by improvement in the system of gradual reduction by fluted rolls, and by separation of the breaks by rotary scalpers, the action of which is peculiarly adapted to such work. The extracted kernel or break meal varies very much in value according to the break from which it comes. In the Rio mill it is divided into four distinct qualities, each of which is conveyed to reels and rotary graders, which dress out the break flour, and sort the middlings, or particles nearest in size to flour, into as many as about eight distinct sizes; and also into the same number of sizes the semolina or larger portions of the kernel, which are somewhat like rough sand. Each size of middlings goes into a purifier of the kind shown in Fig. 13, to be freed from fluff and all branny portions before further rolling. Each size of the semolina is conveyed to one of the semolina or gravity purifiers, in which, while falling in a thin stream over zig-zag louvre boards, it is subjected to a blast of air, whereby the lighter portion or stive is blown away. The heavier pure semolina falls separately upon an oscillating sieve, by which it is further subdivided into four sizes. Each of these again passes down zigzag louvre boards, while a current of air drawn across the running material by a fan separates it into semolina of first and second quality, the small bran and light stive being drawn away through the fan. The germ being of equal specific gravity with the best middlings and semolina, is still contained in them. These therefore are all now conveyed according to their size and quality, to separate smooth roller mills, which are so set that they reduce the semolina and middlings, but only flatten the germ; the latter is therefore readily and automatically separated in the dressing or sep-

arating process that follows each rolling. The extraction of the germ is desirable, because the presence of this oily body spoils the flour if stored for a long period, and also adversely affects its taste. No flour will stand a long journey by sea if the germ is not extracted; and the separated germ brings a good price for cattle food. The gradual reduction is continued even in the treatment of semolina and middlings, partly because the flour produced by high grinding or gradual reduction is better in color and in baking quality than that produced by low grinding or rapid reduction; and partly because the more gradual is the reduction into flour, the greater is the facility for again separating and removing further particles of bran, germ, and other foreign matter, which are still present among the particles of kernel, however careful may have been the purification. It is in the elaboration of the best means of effecting this object by automatic appli-



cances that the modern improvement in roller milling mainly consists. After each careful reduction of the purified semolina by smooth chilled iron rolls, the rolled product is passed into centrifugal dressing machinery with silk coverings, through which the flour and reduced middlings are dressed and separated out. The flour goes to the flour-packing machinery; but the middlings and tailings from the dressing machines are first separated and purified by dusting reels and purifiers, and are then further reduced by rollers, and redressed and repurified, until the separation of the flour from the offals is completed. In the Rio mill this reduction by smooth rolls, apart from the granulation by fluted rolls, entails operations which while perfectly automatic are also perfectly under control.



The flour from each of the dressing machines is delivered at will into any one of the four main flour conveyers, which run from end to end of the mill. This arrangement enables the miller to combine the different kinds of flour into any number of qualities desired. Four distinct qualities of offal are also collected. From the mill the flour is conveyed across the yard by bands and the offal by other bands to the flour store, where they are all taken off and packed into barrels or sacks by mechanical packers. The last part of the process only, namely the weighing of the flour and its storage and distribution, is performed by manual labor; up to this point every portion of the work described from the unloading of the wheat from the vessel to the packing of the flour, is done altogether automatically. The flour store has a capacity of 30,000 sacks of flour, and besides the packing and weighing machinery, contains three double friction hoists, for raising the flour for

storage in the upper floors and for loading it into carts.

**DUST COLLECTOR.**—For the purpose of collecting the dust with which the air in flour mills is laden, a contrivance has recently been invented in the United States, which is applicable also to any manufactures where it is desired to free the air from dust or fluff, with a view either to the comfort of the workpeople or to the prevention of waste. The field for its application is thus an extensive one, and will become the more so when its simplicity and advantages are more generally known.

The machine, which is called the "Cyclone" dust collector, consists mainly of a plain inverted conical chamber of sheet iron, as shown in the sectional drawing Fig. 14, from which it will be seen that the dust-laden air, collected as usual by an exhaust fan and propelled through a wind-trunk, enters the dust collector through the inlet spout A, and being forced against the surface of the cone, is made to revolve in a spiral direction downward, as shown by the arrows. By the action of the air current and by centrifugal force the particles of dust keep close to the conical surface, and are swept round and round, gradually reaching the opening B at the bottom, where they pass out and are collected into any desired receptacle. The volume of purified air, on the other hand, finding itself confined as it works down the cone, turns upward in the centre and escapes through the central tube C at the top of the apparatus. The process is so simple and effective, that without actually seeing the machine at work, it is difficult to credit the result, and still more to realize the complete manner in which, in most cases, the separation of the dust from the air is accomplished.

From the engraving it will be seen that the machine has no moving parts, requires in itself no driving power, and is practically free from wear and tear. It also does away with the great objection to all previous dust collectors which strain the air through cloths and flannels, namely that the latter obstruct the free passage of the air, and gradually, but inevitably, in spite of care and cleaning devices, become filled up with soft adhesive dust, which with the moisture of the atmosphere forms a paste, and renders the filter cloth useless after periods varying from a few weeks to a few months, according to circumstances. This objection is all the more serious in flour milling, because by the gradually increasing resistance offered to the air-current other machines, depending upon the regularity of the exhaust, are affected in the quality of their work and otherwise. The cyclone dust collector has the great advantage that it works without impairing the constant wind pressure. It has already been most extensively applied to many industries in the United States, and for flour milling and wood working alone over 3,000 machines are there in use.

#### MILLING AND MECHANICAL NOTES.

AN English firm of engine builders have recently placed upon the market a portable engine and boiler with removable fire-box and tubes.

THE old, old question "Can a Millstone be used to advantage in a modern flour mill?" has recently sprung up again in some of our exchanges on both sides of the water and it brings out anew all the old arguments and prejudices on that subject. The conclusion reached, founded on the arguments we have heard and read, is that there is a place in the course of reduction where millstones will give

more satisfactory results than rollers and it is a fact that many of the best roller mills in the country find a few runs of stone extremely desirable.

**MILL REPAIRS.**—On this subject which is one of considerable importance to the mill-owner, W. R. V. writes in *The Millers Gazette*, (London,) as follows: I advocate having a programme for repairs at regular periods. There may not be entire unanimity as to how often these times of repairs should be taken. A mill working every possible hour both day and night evidently requires more attention than one operating days only. Mills of the former class need a thorough inspection and adjustment twice a year. Besides this, on boiler cleaning days something can be done to any machines where special wear is noticed. Local circumstances would determine the most suitable times for these half-yearly stops. It may be mentioned that in most places it is bad policy to select a holiday time, because the machinists often close their shops at such times, therefore the skilled mechanics are less easily obtained than at ordinary periods. The shafting should be levelled, bearings tested, gearing trimmed and renewed if required; roller mills thoroughly taken apart, every bolt, pin, spring, or other part cleaned and fitted, the rollers tested in the lathe if any noticeable wear is observed. The covers of dressing machinery, of purifiers and sieves, would naturally receive attention. Any alteration to spouting or frame-works would have been previously arranged for and the new parts prepared. Floors may be mended, walls and ceilings whitewashed or painted; in short, a very complete and general clean out may be carried through. The chief point to note is that, having known beforehand when this stoppage was due, every possible detail would be made to fit in. Mechanics of all necessary trades in waiting, new parts prepared, a few extra laborers for cleaning, the engine cleaned and repaired, and generally a useful programme filled.

#### TRADE NOTES.

"Mr. David B. Parsons writes from Waterville, a growing town in Southern Minnesota that there is an opening there for a custom flouring mill and exchange, and that he would be glad to answer any enquiry that might be addressed to him about the locality."

MESSRS. STOUT, MILLS & TEMPLE, of Dayton, Ohio, the builder of the celebrated NEW AMERICAN TURBINE, have just issued a handsome catalogue, well edited, illustrated and printed. It contains a great amount of information of value to users of water power. Write to them for a copy and mention this notice.

ON account of the increased demand for their Safety Water Columns, and consequent necessity for larger manufacturing facilities, the Reliance Gauge Co., of Cleveland, O., have found it necessary to put up an addition to the three story block which they leased a little over a year ago, under the impression that same would be ample for their purposes for at least five years.

THE Chicago representatives of the *New York Belting & Packing Company*, Messrs. W. D. Allen & Co., have just issued a new and attractive catalogue, containing description of a full line of vulcanized rubber goods, including belting, packing and hose. The cover, a buff tint, is very attractive and is printed in red and bronze. A view of the company's extensive warehouse and salesrooms 151 Lake Street, is shown on the back. It is a pamphlet of forty pages, profusely illustrated, typographically correct in every particular, and great care and much labor has evidently been bestowed in its preparation and production. Its possession can not fail to be of benefit to those interested in the line of goods which Messrs. W. D. Allen & Co. handle. Messrs. Allen & Co. also represent the famous Hoyt leather belting, at Chicago.



**SPECIAL STAMPERS OF SHEET METALS.**

We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanizing & Japanning.  
 —ALSO SOLE MANUFACTURERS OF—  
**SEAMLESS STEEL BUCKETS**  
 INSIST on having this Bucket furnished when ordering.  
 Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.



We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"  
 We will make Special Prices rather than move stock to our new factory. Send for discounts.

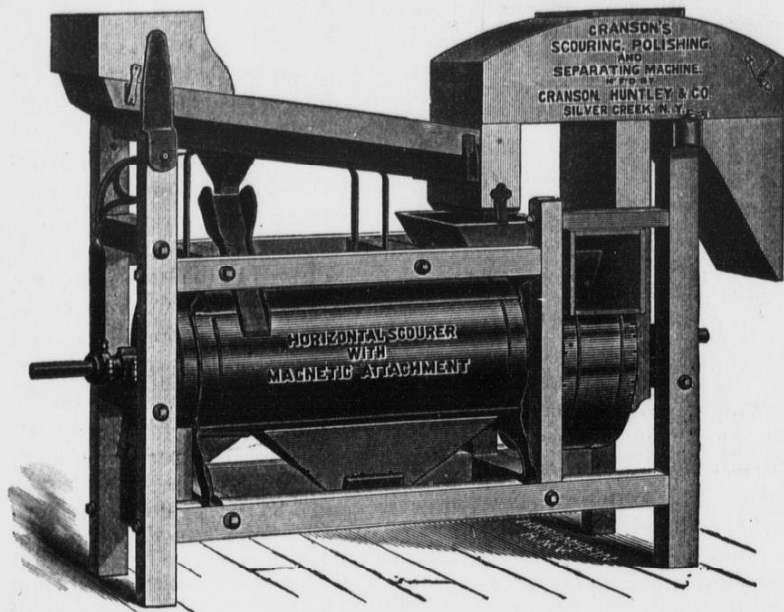
**THE AVERY STAMPING CO.,**  
 —SUCCESSORS TO—  
 AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

# THE CRANSON SCOURER

IS ACKNOWLEDGED TO BE

## The Leading Scouring, Polishing and Separating Machine ON THE MARKET TO-DAY.

Two of these Machines are being placed to one of any other make.



WE ALSO HAVE THE BEST

## Dustless Receiving and Elevator Separator

Ever Placed in any Mill.

Write for Rock Bottom Prices and Full Information.

### OUR HEADERS:

CRANSON'S WHEAT SCOURER AND POLISHER, With Magnetic Attachment.  
 CRANSON'S BUCKWHEAT SCOURER AND POLISHER, With Magnetic Attachment.  
 CRANSON'S ROLLER BUCKWHEAT SHUCKER.  
 MONITOR DUSTLESS RECEIVING AND ELEVATOR SEPARATOR.  
 DIAMOND DUSTLESS CORN SHELLER AND SEPARATOR.  
 DIAMOND CORN SHELLER.

# Huntley, Cranson & Hammond,

Succesors to CRANSON, HUNTLEY & CO.,

SILVER CREEK, NEW YORK.

The Best is Always the Cheapest.

THE CELEBRATED

# DUFOR BOLTING CLOTH

Is admitted by all millers to be the VERY BEST BOLTING CLOTH in the market, and so far ahead of any other brand that, as a matter of economy, they cannot afford to use inferior brands.

\$2,000 REWARD

Will be paid to any person who will furnish evidence to convict the unprincipled dealers who are selling poor and inferior cloths by representing them to be GENUINE DUFOR.

**R. P. CHARLES,**

13 South William Street, - - - - - NEW YORK CITY.

+ ESTABLISHED 1846. +

## J. B. A. KERN & SON Merchant Millers,

Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

### RYE FLOUR

By most approved roller process, guaranteed the best and purest rye flour manufactured.

We Invite Correspondence from Cash Buyers. [When writing, mention this paper].





any time after a bill is filed against any one who makes, uses, or sells an infringing machine, on presenting a copy of the record in that case and proof of infringement. So thorough was the defense made in that case, prepared by able counsel, supplied with unlimited money, after exhaustive examinations of the patent offices of this country and of Europe, and backed by the knowledge of the "Big Five," who united in the defense, that it is in the highest degree improbable that any new defense will ever be produced. Under the circumstances you may expect that the decision of Judge Brown, made after full argument and thorough consideration during the four months while he held the case under advisement, will be accepted in all the U. S. Circuit Courts as conclusive upon the validity, construction and infringement of the patent.

As to the question of infringement by other unlicensed machines, you will remember that three years ago, when I advised you as to the validity and construction of that patent, which opinion has now received judicial confirmation, I was then furnished with exact drawings of the principal Roller Mills then in the market, and advised you that every one of them infringed Gray's Patent No. 222,895. My opinion then formed remains unchanged, and, having been reviewed since this decision, is not only confirmed, but is extended to include every Roller Mill I have since seen or have had distinctly presented by drawings, and now manufactured in the United States.

How far you will press your rights to injunctions against those making or using such machines is a matter of expediency which I submit to you.

As to whether you are affected by indemnifying bonds given by manufacturer to millers, I answer, in no respect whatever, unless it may be to increase the certainty of your security of recovering any money recovery for profits, damages, or costs which you may recover.

Such bonds may give the miller protection fully in case a successful defense is made, and in case of failure, as to the expenses of defense and the money recovery, but no protection whatever against the injunction, which, after all, is the great thing to be looked to in such cases. The injunction issues, bond or no bond, and when it is issued the further use of the particular machine must then and there be instantly stopped, and if that stops the mill, then it must stay stopped until some non-infringing machine is supplied to replace it; and that means in this case, until a licensed machine has been obtained, or somebody invents a machine that does not infringe.

When a preliminary injunction is obtained, that runs until final hearing, and if the action is sustained a perpetual injunction issues, which is not suspended by the appeal of the case to the Supreme Court of the United States, and remains in force till the Supreme Court reverses the decree below. What may happen three or four years after the grant of the injunction will not be of much interest to the miller; he can't wait the tardy action of that over-laden Court, which may after all sustain the action of the lower Court.

While on this subject I may as well add that it is a common fallacy that a recovery, with satisfaction of the judgment, in an action against the maker, relieves the user from liability. Not so; the maker only pays for his profits, the user remains liable for his, and both will be enjoined; for no one can obtain the right to use a patented invention without the consent of the patentee, to whom the law and the grant of the United States has given the exclusive right to make, use and vend, the invention. This is now the settled law both in England and the United States.

It may seem to you that the law is severe but the patent law was not made for the encouragement and protection of infringers, but of inventors, to whom society owes its great improvement in the current century. To reverse the rule would be to relapse into torpor, decadence and death in the arts.

The Supreme Court has repeatedly said that a man's rights under his patent for an invention is as absolute as under a patent for lands, and no one would say that one should lose his right to his house, because some one else saw fit to take possession of it against his will.

Yours Very Truly,  
R. MASON.

It appears to us, after several conferences with members of the "Big 4," that their intention is to push their claims vigorously, and to effect as fair and amicable a settlement with makers and users of infringing machines as possible. It remains with the Courts alone to decide which of the many makes of roller mills now upon the market shall be considered as infringing.

During the Convention of the Millers' National Association just held in Milwaukee, many significant remarks were heard regarding "work ahead," for the organization, and the general impression prevails that there may be an opportunity for the Association to once more prove its usefulness and value to millers of the country.

**WAXED** paper bags are now being made in New York, the interior surfaces of the paper being lined with a thin coating of paraffine, which renders the bag substantially air-tight and waterproof. Bags made of paper thus prepared would doubtless be of great value for keeping flour sweet and clean.

## MILLERS' NATIONAL ASSOCIATION. 1889.

ANNUAL MEETING HELD AT THE PLANKINTON HOUSE, MILWAUKEE, JUNE 11, 12 and 13.

At 11 a. m., June 11, members of the Millers' National Association met in club room of the Plankinton House. Mr. F. L. Greenleaf, vice-president, called the meeting to order, and after a few appropriate remarks called for the reading of the report of the secretary and treasurer. Sec'y S. H. Seamans then read his report, which was duly accepted and ordered placed on file.

### SECRETARY AND TREASURER'S REPORT.

Financial Statement for year ending June 1, 1889:

June 1st 1888, Balance on hand as per annual statement.....	\$3285 86
Received Membership fees:	
Missouri 1 firm 5 units.....	\$ 25 00
Tennessee 2 " 10 ".....	50 00
Kentucky 1 " 3 ".....	15 00
Iowa 2 " 2 ".....	10 00
Illinois 19 " 60 ".....	301 25
New York 5 " 12 ".....	60 00
Dakota 2 " 3 ".....	15 00
Michigan 6 " 18 ".....	90 00
Minnesota 6 " 19 ".....	95 00
Wisconsin 6 " 7 ".....	35 00
Ohio 8 " 53 ".....	265 00
Penn. 4 " 5 ".....	25 00
Indiana 11 " 25 ".....	125 00
Kansas 4 " 5 ".....	25 00
Total 77 firm 227 units.....	1136 25
Grand Total.....	\$4422 11

### EXPENDITURES:

Postage and Telegrams.....	\$ 22 66
Printing and Stationery.....	311 65
Stenographers: Bishop, \$28 00; E. L. Burdick, \$30 00.....	58 00
Express charges.....	3 40
Exchange: checks and drafts.....	3 00
Travelling and Hotel expenses (Ex-Com. and Officers).....	224 25
Secretary and Office expenses.....	1200 00
Funeral, Mr. N. Ellis, floral tribute.....	25 00
	\$1847 96
Balance on hand in Bank.....	2574 15
	\$4422 11

Mr. A. H. Smith, chairman of the Executive Committee, then read his report, which was as follows:

### REPORT OF EXECUTIVE COMMITTEE.

At our meeting in Buffalo, a year ago a resolution was adopted as follows:

"That this Association, in convention assembled hereby agrees to adopt the following bill-of-lading prepared by the joint committee of millers and foreign delegates and that a committee be appointed with full power to bring about its adoption by the carriers."

This resolution was disposed of by reference to the executive committee pending the organization of the Central office.

A previous resolution provided that when a certain stated sum had been accumulated in the treasury and not before, the Central office should be established. The necessary funds were expected to be realized through initiation fees from new members, on the reduced basis of five dollar on each hundred barrels daily capacity of mills.

The proposition was broadcast to the millers of the country through the milling press and by special address to five thousand millers, the meagre returns from which were about seventy-five new members, failing to reach the limit required for starting the Central office, thus clearly indicating that the millers generally did not approve of the proposed expenditure, consequently no action has been had on the bill-of-lading and other matters which it was expected the Central office would take up. On mature reflection, and considering the vast amount and variety of work laid out for the Central office, together with the requirement that millers should report thereto their daily shipments to make the proposed service of value, we conclude that the office, if it had been established, as contemplated, would have failed of its object.

The millers are proverbially negligent in the matter of furnishing details of their business for aggregate general use, as has been proven time and again by various efforts to procure information as to capacity, crops or trade, to which appeals only a small minority ever reply.

Referring again to the proposed reform of the export bill-of-lading, in our opinion, any committee that undertakes to negotiate this on other reasonable terms can only succeed if backed by a majority of the millers interested, to the extent if necessary, of refusing to ship or do business on any other terms.

This policy might cause a temporary suspension of shipments at some slight sacrifice to individual millers, but if the demands were only reasonable, as in this case, they would probably be granted without great delay. Many other suggestions made at the last meeting have been effective, in limiting credits, promoting uniform weights of packages and, more than all, in encouraging local and sectional organization, which has proven of much benefit to their members.

These associations should become part of and support the National Association for the protection of millers in the matter of patents and as the focus to which the entire milling strength of the country can at any time be rallied for protection of mutual interests however threatened.

Every miller in the country can help himself and his brother millers by belonging to local or sectional associations and by living up strictly to such rules and regulations as he may participate in making, and the aggregate force of the Associations should be, for the common good, centered in the National Association, the prestige and power of which should be increased. To reach this it may become necessary for the National Association to expend more money than for a few years past, since patent litigation has been suspended, and to provide funds the constituency Associations should agree to such assessments on capacity as may be necessary; they should do this even if no immediate cash benefit is apparent, they cannot tell in advance what this may be, but they can and do appreciate what the National Association has done in the past to protect all the millers of the country, whether members or not.

The organization through which this has been accomplished exists in full force, only requiring the emergency to act, and should be heartily sustained as herein indicated.

Except in the matter of limiting prices, which this association cannot undertake, its recommendations as to policy and customs has heretofore been largely adopted and adhered to by local associations and by individual millers, and it is therefore important that any new propositions should be thoroughly considered and discussed before adoption, as our action will continue to have almost the binding force of orders to the millers of the country, we must adopt nothing that will not meet their approval.

Milwaukee, June 10, 1889.

ALEX. H. SMITH, Chairman.

An invitation was extended by the Chamber of Commerce to the millers to visit them in a body at 12 M. On motion the meeting adjourned until 2:30 P. M.

Upon adjournment of the convention the visitors formed in line and marched to the Chamber of Commerce. Upon their entrance Clauser's orchestra struck up a spirited march. The visitors greeted friends and those

unacquainted were introduced. A little time was thus spent in making and renewing acquaintances. When President Mohr, of the Chamber of Commerce, called for order, Vice-President Greenleaf, of the Millers' National Association, and Chairman Smith, of the executive committee of the association, Mayor Brown and President Kelly, of the advancement Association, occupied seats on the platform.

President Mohr's speech of welcome was as follows:

GENTLEMEN OF THE NATIONAL MILLERS' ASSOCIATION: Allow me on behalf of the Chamber of Commerce of Milwaukee, to bid a hearty, cordial welcome to an association so closely allied with us through ties of interest and sympathy, and let me assure you that we feel proud of the privilege of greeting, in our hall, a body of men representing one of the greatest and most useful industries of this and other countries. A factor of civilization—it has been one of the most beneficial of all to mankind, from the time when a hand-mill was the only known machinery, or a single horse on a tread-wheel had to furnish the motive power, to the living present when milling has become identical with absolute science, and the American merchant miller of to-day, in order to be successful, needs not only to be an expert theoretician and practically in his pursuit, but also a first-class man of business, to meet all contingencies, changes of trade, conditions, and the compensation of the world. And you gentlemen, and your organization represent business ability and talent in such a degree and marvelous enterprise that we may well feel honored through your visit.

Permit me to express the hope that your honored organization may long live and strive, and that your business meetings in Milwaukee may contribute toward bringing about desired results. Again let me say, welcome!

President Mohr's speech was warmly received. Mayor Brown, introduced by President Mohr, extended a cordial welcome to the visiting committees. He alluded to the fact that all trades and professions have their organizations, which generally proves beneficial. He said that there is no calling more ancient, more necessary, more honorable, than that of the millers. After this warm tribute to the milling industry, the speaker gave a short and interesting sketch of the evolution, told a couple of illustrative stories, and concluded: "Gentlemen, you have the freedom of the city; if you see anything you want, take it; if you want anything you do not see, apply to my friend, President Mohr, who, though modest and quiet, is like the still water."

Acting President Greenleaf, of Minneapolis, responded on behalf of the association. The hospitality of the people of Milwaukee, he stated, during the informal meeting here last December, appeared boundless, and the millers felt somewhat delicate about coming again so soon, but were glad to be here. He spoke of the beauty of Milwaukee, and said that he and other millers thought of coming here when the "boom" year that all millers hope for finally materialized. He paid a warm tribute to the late Edward Sanderson, declaring that the milling fraternity had suffered an irreparable loss in his death. He then called upon George Bain, of St. Louis, formerly president of the association, to make a further response.

There were loud calls for Mr. Bain, and he appeared on the platform. He made a very witty speech, speaking of the cold reception accorded him by the statue of Juneau, of the stiffness of Lief, to whom he said he was sincerely grateful for discovering America before Columbus. He stated that he assisted in the location of the post-office in St. Louis, and got off some happy hits concerning the Milwaukee post-office case. He closed by speaking in highly eulogistic terms of the late Edward Sanderson.

President Kelly, of the Advancement Association, was introduced by President Mohr. Mr. Kelly cordially welcomed the dusty millers, who, by the way, are not dusty in the least, to Milwaukee. If they got into any trouble while in the city, he said, and Mayor Brown would not help them out, he wanted them to come to him. He invited them all to come to him. He invited them all to come to Milwaukee and live. His remarks, like those of the other speakers, appeared to greatly please the millers.

President Mohr called upon Alexander H. Smith, chairman of the executive committee of the Millers' National Association. Mr. Smith ascended the platform, and said that having been president of a board of trade himself he knew that the most popular member is the one whose speech is the shortest. He briefly thanked Mayor Brown, the members of the Chamber of Commerce, and the people of Milwaukee generally. President Mohr dismissed the meeting by informing millers that they had Mayor Brown's permission to turn to and scalp.

Clauser's band then discoursed some very fine music, boxes of fragrant Havanas were passed around and after lingering for a little while the members gradually withdrew to go to their dinners.

### AFTERNOON SESSION.

At 2:30 p. m., the convention again assembled in the Plankinton House club room for business.

The following we believe is a full list of those attending the convention:

#### MILLERS.

Chas. Albers, mgr. Warsaw Milling Co., Warsaw, Ill.  
Homer Baldwin, Youngstown, O.  
Geo. L. Bain, St. Louis.  
Wm. Brazier, mgr. Daisy Roller Mill, Milwaukee.  
J. A. Bailey, Minneapolis.  
Wm. De la Barre, Minneapolis.  
A. A. Freeman, La Crosse, Wis.  
Faist, Kraus & Co., Milwaukee.  
F. L. Greenleaf, Minneapolis.  
John L. Heywood, St. Paul Roller Mill, St. Paul.  
F. E. Holmes, mgr. Washburn Mill Co., Minneapolis.  
L. R. Hurd, Fargo Roller Mill Co., Fargo, Dak.  
D. H. Harris, B-nnett, Neb.  
A. R. James, Central Milling Co., Buffalo, N. Y.  
J. B. A. Kern & Son, Milwaukee.  
Henry Kern, Springfield, Ill.  
F. B. Keene, Frederick Mill Co., Frederick, Dak.  
E. J. Lachmann, of Krueger & Lachmann, Neenah, Wis.  
J. H. Mennell, of Isaac Harter Co., Fostoria, O.  
F. Magdeburg, Milwaukee.  
S. H. Seamans, Milwaukee.  
Bernhard Stern & Son, Milwaukee.  
H. B. Sanderson, Milwaukee.  
Wm. Sanderson, Milwaukee.  
C. B. Salmon, of Huston Milling Co., Beloit, Wis.  
D. R. Sparks, of Sparks Milling Co., Alton, Ill.  
Geo. Tilston, St. Cloud.  
Wm. Trow, Madison, Ind.  
Geo. Urban, Buffalo.  
John Washburn, Minneapolis.  
S. K. Wambold, of Wambold & Son, Appleton, Wis.  
S. R. Willey, Appleton, Wis.  
H. C. Yeager, Carlinville, Ill.  
Alex. Smith, St. Louis.

S. Goodlad, of Stanford, Logan & Co., Black Earth, Wis.  
J. O. Kendall, Hartford, Wis.  
A. W. Loughry, Monticello, Ind.  
Wm. Listman, La Crosse, Wis.  
Wm. Lang, Milwaukee.  
F. Leadbetter, Rome, Wis.  
H. H. Price, Black River Falls, Wis.  
F. W. Upham, Marshfield, Wis.  
N. O. Winter, Neenah, Wis.  
W. Ward, Warsaw, Ill.

#### MILL FURNISHERS.

Wm. E. Sherer, of S. Howes & Co., Silver Creek, N. Y., Minneapolis.  
Chas. Knickerbocker, of Knickerbocker Co., Jackson, Mich.  
F. W. Howell, Hodge, Howell & Co., Buffalo.  
Wilford & Northway, of W. & N. Mfg. Co., Minneapolis.  
Prinz & Rau, of Prinz & Rau Mfg. Co., Milwaukee.  
J. F. Harrison, of E. P. Allis & Co., Minneapolis.  
Wm. Gray, of E. P. Allis & Co., Milwaukee.  
F. W. Barry, of E. P. Allis & Co., Milwaukee.  
H. J. Deal, Deal Specialty Co., Bucyrus, O.  
B. F. Ryer, of Cranson, Huntley & Co., Silver Creek, N. Y.  
W. Dinsmore, of Godfrey & Clark, Chicago, Ill.  
F. Mann, Milwaukee Bag Co.  
O. P. Hurford, of the Link Belt Machinery Co., Chicago.  
E. W. Pride, of Johnston Mfg. Co., Neenah, Wis.  
C. A. Wagner, of Superlative Pur. Mfg. Co., Milwaukee.  
R. L. Downton, of Climax Dust Coll. Co., St. Louis.  
Andrew Hunter, of Superlative Pur. Mfg. Co., Minneapolis.  
J. H. Walsh, of Superlative Pur. Mfg. Co., St. Louis.

#### COMMISSION.

Conover & Gee Company, Minneapolis.  
Geo. W. Gardiner, of J. J. Blackman & Co., New York.  
Crawford & Law, Glasgow.  
Cornelius Dorr, Boston.  
Snodgrass & Co., Chicago.

#### PRESS.

H. B. Mitchell, of American Miller, Chicago.  
C. K. Reifsnider, of St. Louis Miller, St. Louis.  
E. Harrison Cawker, of U. S. Miller, Milwaukee.  
Al. Hoppin, of Stationary Engineer, Chicago.  
W. C. Edgar, Bus. Mgr. Northwestern Miller, Minneapolis.

F. H. Litchfield, of Northwestern Miller, Minneapolis.  
The Millstone, Indianapolis.

C. F. Hall, of The Modern Miller, Kansas City, Mo.

An invitation was read from Messrs. Edw. P. Allis & Co. to millers to visit the Reliance Works at any suitable time during their visit. On motion of Mr. Smith the invitation was accepted and the thanks of the convention tendered Messrs. Edw. P. Allis & Co. for their courtesy.

Homer Baldwin, of Youngstown, O., then read the following resolution which was unanimously adopted.

Resolved: That the resignation of the Northwestern Miller as the official organ of the Millers' National Association be and is hereby accepted; that we extend the thanks of the Association to the Northwestern Miller for its past services in our behalf, and that we trust it will continue to represent our interests as faithfully in the future as it has in the past.

Mr. Baldwin then introduced the following resolution which was passed.

WHEREAS the Executive Committee of the Millers' National Association realize the fact that the best interests of this Association demand and require the support and good will of the entire milling press of America, and in order that peace and harmony may prevail, therefore be it resolved, that in all matters pertaining to this Association, no undue preference shall be shown to any one journal; but that each and every journal, so long as its conduct so justifies, shall be placed on an equality, and we hereby extend the right hand of fellowship to said journals and respectfully request their united support in all matters tending to the best interest of the Association.

Mr. H. Sanderson then inquired what the action of the executive committee had been in relation to the famous resolution adopted at Buffalo, about which so much had been said in the papers. Upon request of the president the secretary read the resolution which was pronounced to be authentic by the entire executive committee. The resolution read as follows:

Resolved, That the resolution as published and reading as follows:

Resolved, That this Association extends its thanks to the mill-furnishers here and the mill builders of America, who have contributed so much to the pleasure and profit of those attending the meeting; to Mr. Geo. T. Smith for his magnificent stroke of enterprise and genius in placing upon the streets of Buffalo the unique and beautiful model mill which has been a source of pleasure to hundreds here; to The John T. Noye Manufacturing Co. for exhibits of machinery and courtesies extended; to the Bradford Mill Co.; to Cranson, Huntley & Co.; J. M. Case and H. J. Deal, as well as to all others who have, by sending their machinery and drivers here, enabled the millers in attendance to observe the marvelous progress being made by the inventors and manufacturers of flour mill machinery; to the Daily Northwestern Miller for its enterprise in providing us with a chronicle of the daily doings of the meetings.

Adopted. S. H. SEAMANS, Secy., be and is hereby affirmed and declared the official resolution passed by the convention at Buffalo.

The report being satisfactory to the convention, they proceeded to consider the invitation to appoint delegates to the International Millers' Convention to be held in Paris, France, in August next. The president was authorized to appoint representative millers who were going to Europe as delegates. Among the names mentioned were those of J. S. Pillsbury, of Minneapolis, and J. W. Matthews, of Buffalo.

The matter of regulating the weight of flour packages was then taken up, and after a general discussion was referred to a committee consisting of D. R. Sparks, Homer Baldwin and Geo. Urban, for further action. A spirited discussion of the credit system, black list, etc., then followed, and the conclusion appeared to be that these matters could only be satisfactorily handled by a Central Bureau, to which members of this association could refer their grievances for adjustment. At this point it was moved that a committee of three be appointed to formulate a plan for the establishment of such a bureau, to report at the morning session, Messrs. Yeager, Tilston and Brazier were appointed on said committee.

Convention then adjourned to 9:30 A. M., June 12.

During the session the following article was read:

### THE COMPRESSING OF BRAN.

By W. DE LA BARRE.

(Nagel & Koemp's Patent.)

Of the various assortments of offals produced during the process of milling wheat the most important is undoubtedly the bran, since it forms upon the average at least 15 per cent. of the total weight of the grain. In addition to this the fact of the bran possessing a high market value enables it to exercise very great influence upon the success or otherwise of every milling establishment.

Whilst both grain and flour constitute large and increasing articles of commerce, bran, from an international point of view, is practically excluded owing to the difficulty and heavy cost of transporting it to

CONTINUED ON PAGE 65.





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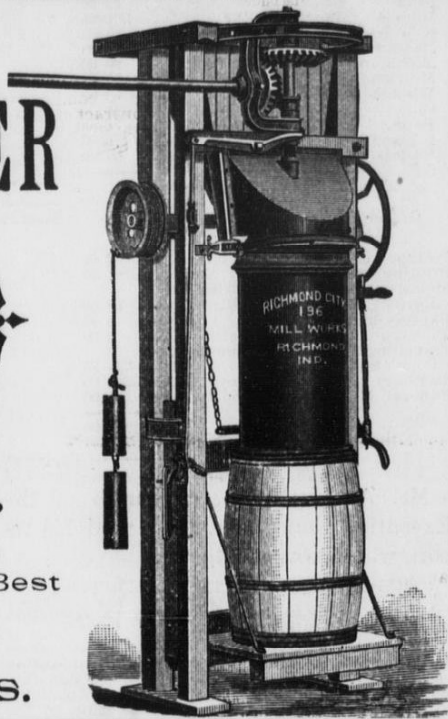
### Richmond City Mill Works,

General Mill Furnishers,

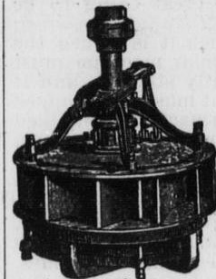
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SEND FOR DESCRIPTION AND PRICES.



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This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

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Phoenix Iron Works,  
Sheboygan Falls, Wis.

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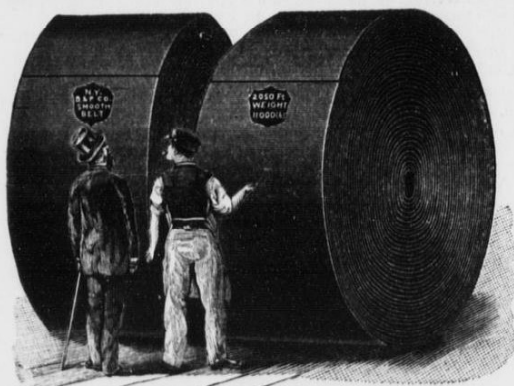
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and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.



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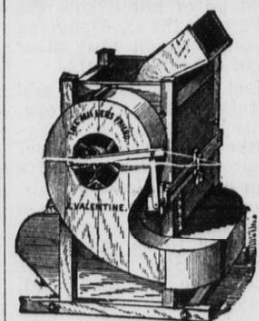
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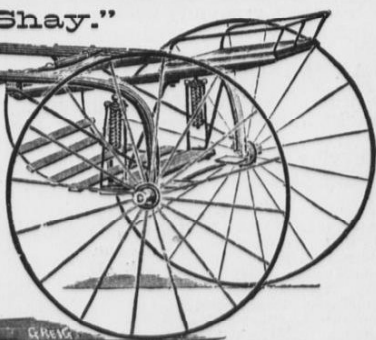
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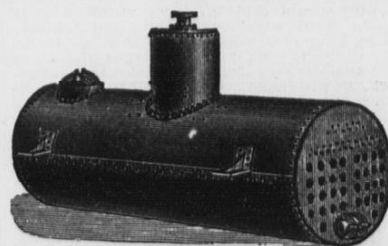
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TWO SHEET BOILERS A SPECIALTY.

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Prices furnished on Application.



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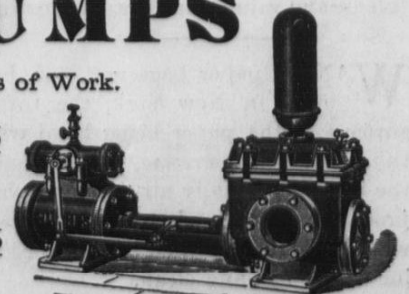
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Of Every Description for all kinds of Work.

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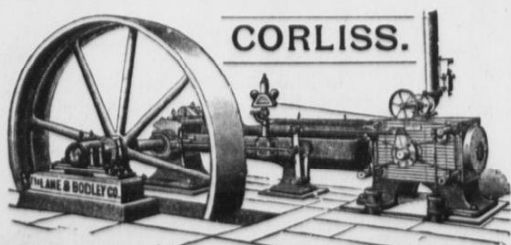
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any great distance consequent to its large bulk as compared with its weight when packed in the ordinary manner.

In many foreign countries the profitable disposal of bran is impossible and a natural result of this is that the producers are heavily handicapped in their business. This state of things would be entirely reversed, were the bran, in place of being as heretofore loosely packed in sacks, etc., capable of being exported in the form of hard and dry cakes and thereby bring its weight and bulk into so close a ratio that the carriage of the material to long distances could be effected at a reasonable cost.

For years past endeavors have been made to form and press bran into cakes; but these have hitherto proved all more or less unsuccessful, and it has been reserved for the Finkel-Lesshaft process to demonstrate the fact of the possibility of pressing bran and similar products into cakes of a hard and durable nature by the judicious application of heat and superheated steam to the material before commencing the process of pressing.

The object is to produce a firm and properly coherent cake, which shall keep well under various circumstances, which, even though chipped at the corners and edges, shall not readily fall to pieces, and which shall at the same time present the advantage of being small in volume, whereby it may conveniently be packed and readily transported.

Attempts have heretofore been made frequently to work the exterior portions, husks, shells or cortex of grain and the cereals, especially bran, into a firm or solid mass by simple pressure; but these attempts have not been so far as known productive of good results. As a general thing, the cakes which it was desired to make fell to pieces as soon as pressure was relieved, since the particles out of which it was desired to make the same, especially when these are of bran, will not adhere or cohere of themselves. In order to get greater firmness of the cake it has been proposed to moisten the substance from which it is to be made, with water, which would put the glutinous matter into solution, and then to form the cake by pressing the mass in a hot press; but under this procedure only a coherent crust was formed upon the surface of the cake, so that upon any injury to this crust the cake fell apart. Furthermore, cakes of this kind retain so much water in their interior that they decay readily sets in. By the present procedure all these defects are remedied.

The present invention consists in a mode of forming dry cake from the husks, shells or cortex of the cereals, or from bruised or broken grain itself, especially from bran, which consists in dissolving the glutinous substances contained in the material named, especially though not the gum, only on the surface, by separate particles thereof, and this by means of hot steam, so that the body of the particles of the bran or other material shall remain dry, and then pressing the mass hot, whereby a coherent and dry cake will be formed.

It is obvious that this invention can be carried into effect in various ways, and that any suitable press will serve the purpose.

The salient feature of the invention resides in the presentation of the proper conditions, to secure by the use of steam at such high temperature, that without wetting their interior, the agglutination of the particles of the mass may be secured to cause them to cohere into a firm and dry cake upon pressure.

The steam dissolves the glutinous matters on the surface of the separate particles at once and in sufficient quantity, so that upon the application of pressure a firm cohesion of all the parts is effected and the production of solid dry cake achieved. The quantity of steam to be introduced into the apparatus is governed by the kind and quantity of material to be treated. As the bran passes to the press in a heated condition, the steam does not overheat the cake to come from the press in an absolutely dry state, so that the same, even when stored in a place not perfectly dry, will not spoil.

There is no subsequent falling apart or crumbling of the cakes, since the material becomes unitary—in all parts a firmly-cohering mass; hence any breaking off or injury to the corners of a cake has no deleterious effect upon the holding together, firmness or cohesion of the same. It is clear that to attain this result it is essential that the bran should be pressed while dry and hot, and that therefore the admission of steam must be so regulated that nothing like a pulpy mass will be formed. In such case upon pressing, the crust which would be formed upon the surface of the cake would prevent a thorough drying, so that moisture would remain in the interior, which would be productive of speedy spoiling.

Although reference has been made chiefly to the pressing of bran into solid pieces, it will be apparent that by the same process the coarse bran, flour or meal or broken grain may likewise be converted into firm and solid cakes.

Bran and similar materials possess within themselves the necessary properties for securing the required adhesion of the various particles when acted upon by warmth and moisture in a suitable manner and it is upon this fact that the Finkel-Lesshaft process has its foundation.

The formation of cakes by pressing bran is not new. This has even been done with a warming and steaming of the bran; but it is new in the procedure that directly before pressing, the bran or the like is steamed, and to that point that the glutinous matter therein contained, especially the gum, is so far dissolved that the separate particles of the bran upon pressing into cake will firmly stick together without leaving the cake moist.

Messrs Nagel & Kaemp of Hamburg have devised a machine of ingenious construction, which embodies the Finkel-Lesshaft process and which produces a constant stream of compact and durable bran cakes in a simple and expeditious manner.

The compressing apparatus as devised and patented by Messrs Nagel & Kaemp resembles somewhat an iron planing machine in its outward appearance.

There is a solid iron frame with a crankshaft which sets in motion two or more plungers which work into pressing cylinders arranged horizontally on this frame, and each time the plungers are drawn towards the crank a measured quantity of bran falls into these pressing cylinders. Upon the advance of the stamp this material is forced into a long and suitably formed mould, and from this the finished cakes are discharged somewhat after the manner of moist bricks in a brick press.

The crank works within a link to which the stamps or plungers are attached and the whole is driven by a belt pulley and geared wheels. The material to be pressed enters first into a separating chamber and is thence discharged into the heating and steaming apparatus below. This apparatus is furnished with a steam jacket and contains a series of plates placed one over the other in such a manner that the material falling upon them is minutely subdivided and in this condition is subjected to the heating and steaming process already referred to before passing into the pressing cylinder.

The stamp or plunger, before mentioned, carries the material through the pressing cylinder into a mould from which the finished cakes are discharged in a fit condition for storage either in single cakes or in layers.

The pressing cylinder is constructed with a view to the removal, during the pressing process, any of superfluous air or moisture which may be in the material, and the mould can be adjusted to give any required degree of compactness to the cakes. The cakes formed by Messrs Nagel & Kaemp's Bran Press average in bulk only 1-5 or 1-4 that of a similar weight of wheat bran when packed in the ordinary manner and in the case of bran from rye the bulk is reduced one-half.

The capacity of this bran press is equal to about 1500 to 2000 pounds weight of bran per hour.

The machine requires for its operation from 5 to 7 horse power and one man as attendant.

Cakes formed by this process weigh upon the average one ton per cubic metre (35 cubic feet) and form a feeding material much better adapted to storage or transport than bran packed in the usual manner. The cakes are eaten by horses in a dry state whilst for other animals they are broken up and prolonged tests have demonstrated the fact that cakes are quite as nutritious as loose bran whilst the advantage in the matter of storage and transport will be self-evident to every one engaged in the trade.

The specimen of samples which I submit to your critical inspection have now been over a year in my possession; they have been exposed to all sorts of atmospheric influences and have been somewhat abused by frequent handling. I take pleasure in showing you samples of compressed spring and winter wheat bran, shorts, rye bran, wheat dust and dirt from cleaning machines.

## MORNING SESSION.

WEDNESDAY June 12th.

Upon the convention being called to order Mr. Bain presented a resolution of respect to the late Edward Sanderson of Milwaukee, which was adopted by a rising vote. Resolution was ordered engrossed and presented to Mr. Sanderson's family.

Mr. Alex. H. Smith then introduced a resolution of respect to the late Nicholas Elles of Evansville, Ind., which was adopted.

Mr. Smith also introduced resolutions of respect to the late Edward P. Allis of Milwaukee. Adopted.

Chairman Yaeger, of the committee to consider the advisability of having a Central Bureau, made the following report, which on motion of D. R. Sparks was unanimously adopted:

The committee to whom was referred the consideration of methods by which the interests of the Association may be furthered believe it unwise for the association to attempt too much at first, but that the scope of the work can be gradually extended and with this view respectfully submit the following resolutions:

**Resolved:** That, this Association employ a secretary who shall give his entire time and attention to the business of the Association and who will be subject to the advice and instructions of the Executive Committee. One of the objects and work of the secretary shall be to take charge of complaints from members of the Association in good standing, of unjust transactions on the part of flour buyers and of unreasonable delays in transit of flour to destination.

**Resolved:** That, a member making a complaint should present his grievance or contract of sale, clearly set forth to warrant the expectation that the Executive Committee will entertain it. It should be the aim of the Association to avoid litigation and resort to it only after all other efforts have failed to sustain the rights of its members.

HENRY C. YEAGER.  
W. H. BRAZIER,  
GEO. TILSTON.

Resolution recommending to President Harrison the appointment of Hon. Geo. Bain, of St. Louis, as U. S. consul to Glasgow was adopted.

Resolution of thanks to the citizens of Milwaukee were adopted.

Resolutions to appoint a committee to examine closely into all foreign transportation questions was adopted.

The committee on nomination reported, and the convention proceeded to the election of officers, with the following result:

President—F. L. Greenleaf, Minneapolis  
1st Vice-President—A. R. James, Buffalo.  
2d Vice-President—Wm. Sanderson, Milwaukee.

3d Vice-President—Geo. H. Plant, St. Louis.  
S. H. Seamans, Milwaukee, Wis., Secretary and Treasurer.

Secretary Seamans announced a carriage drive, lunch at Soldiers' Home and opera at Schlitz Park.

## EXECUTIVE COMMITTEE REPORT.

At the meeting of the executive committee held at the Plankinton House, May 10, the subject of patent infringements was generally discussed. The first was on the patent claimed for changing from hexagon to round reels. Further action was deferred until the patent had been examined.

The "Cyclone" business was then taken up. Secretary Seamans said that matter was adjusted. The Knickerbocker Co. has put up with us a bond of \$50,000 to protect every member of the Association, who was a member at that date, from any infringement of their patent and parties buying machines of any one else must look to the seller for safety.

Discussions brought out the statements that Downton of St. Louis and a Lockport, N. Y., company, and also the John S. Smith Dust Collector Co., of Jackson, Mich., had announced their intention of making a fight. Mr. Downton arrived just at this moment from St. Louis and said his lawyers were at work preparing a test case. Upon inquiry the secretary announced that no other dust collector manufacturing company had yet filed a bond aside from the Knickerbocker Co.

Secy. Seamans said: The bond put up by the "Big Four" is bearing fruit. Their patents are sustained as far as the Gray patent is concerned in the changing of rolls—leveling them up. We have a bond up for \$100,000, and every member of the association, no matter what rolls he was using at the time settlement was made is free—that is, he is not liable to them for infringement; but any rolls he buys after that time he is liable for infringement. That bond also is to guarantee any person using rolls of the "Big Four" against any other patents. We also had an agreement with seventeen outside manufacturers of roller mills. They agreed to put up a bond, but backed right square out and refused to carry out the agreement, with one exception—the Phoenix Iron Works of North St. Paul. Other parties claim to have put up a bond for \$250,000 with Mr. Pillsbury, they publishing his acknowledgement. A representative of the manufacturers outside of the "Big Four" requested that the association would stand neutral and let this fight be fought out between the roller mill manufacturers.

The following was the communication of the Knickerbocker Co.:

JUNE 11, 1889.

The Sub. Exec. Com. of the Millers' Nat. Ass'n.

GENTS:—In accordance with our conversation with you to-day, we submit the following proposition as to terms of settlement for infringements of our patents on the well-known Cyclone Dust Collector.

We will license any member of the Millers' Nat. Ass'n. who now owns any machine which infringes our patents, upon the payment to us of twenty-five dollars for each of such infringing machines provided the payment is made within sixty days from this date. Our license to others will be fifty dollars per machine.

Yours Respectfully,

(Signed.) THE KNICKERBOCKER CO.,  
by R. H. Emerson, Treas.

Various other matters were discussed among which was the "thanks resolution" mentioned elsewhere.

5 P. M.

After the return of the millers from the carriage drive the convention re-assembled. The following communication from the

Vortex Dust Collector Co., of Milwaukee, was read:

Gentlemen:—In view of the notices and circulars of other parties manufacturing dust collectors, and the communications that have been handed in to this convention, we take the liberty of informing all users and future purchasers of the Vortex Dust Collector that we have been allowed patents No. 397,048 Jan. 29th, 1889, and 400,391 March 26th, 1889, and also one in the last issue of which we have not yet received the number, and have others pending. The patents which have been granted us fully cover the machines we manufacture and we are prepared to protect all customers in the use of our collector and to defend all suits for infringement, should any be entered.

John Washburne moved that the next meeting be held in Minneapolis. Carried.

R. L. Downton's communication was read, which was as follows:

To Millers, Mill Furnishers and all Manufacturers Using Dust Collectors:

My attention has been called to the advertisements and threatening letters of certain manufacturers, who claim that Letters patent No. 403,362 and No. 403,363, dated May 14th, 1889, that they are the exclusive owners of Dust Collectors into which the air is passed through a tangential spout, the dust passing out through the nozzle at the small end or bottom of the machine, and the air discharging at the top. Now this invention is not their property, and when this is tested in the Courts, in my belief it cannot admit of any other interpretation.

This method, which is the principle on which this class of machines work is shown clearly in my patent No. 162,158, dated April 20th, 1875; and whilst I did not claim the combination of the dog, and the wag of the dog's tail, yet the claim is broad enough to cover all uses in Mills where the Middlings are graded, purified and the Dust settled in the above described method.

As I stated a long time ago to the Secretary of the Millers' Association, my idea was to make and sell the machines that worked the best, and this I can say I have done, without a doubt.

By my patent No. 383,801, dated May 29, 1888, giving me broadly the perforated cone placed in the interior of the machine for equalizing the air and destroying the syphon action in pulling out the dust and blowing it through the Mill, I made a marked improvement in the workings of this class of machines, whether built by me or other parties; and by these and other patents that will shortly issue, I have a machine that is a Dust Collector and not a Dust Distributor, that saves a part of the dust and plows the rest out into the Mill.

Under combination of my own patents is constructed the machine known as the Climax Dust Collector, and the success and perfect working of this machine has been so marked that we are running night and day in our factory, and have sold with little advertising and traveling, a very large number of these machines, displacing many machines of other manufacturers.

Now imagine my surprise at the audacious advertising of the parties referred to, who threaten my customers for using my own machines. I say to them I will defend my customers against any suit; and furthermore, I will prosecute all users of Dust Collectors with the improvement made and patented by me; and I am bringing suit in the U. S. Court for an infringement of my rights, and will guarantee all users and purchasers of my machines against damages for infringement.

R. L. DOWNTON,

Manager, Climax Dust Collector Co., St. Louis

After passing resolutions of thanks to the officers of the Association for their service during the past year, the convention adjourned *sine die*.

**NEWS.**—Corn and flour merchants of Baltimore have asked the Northern Central Railroad to erect an oats elevator and hay storage accommodations.

**BURNED.**—W. H. Thorne's mill at Littleton, N. C., loss \$3,000.

**MINNEAPOLIS** millers sent 2000 barrels of flour to the Johnstown sufferers.

The old steam grist mill at Saratoga, N. Y., is to be turned into a pill factory.

A 300 barrel mill is being built at Morristown, Tenn., by the Merritt Milling Co.

The DeLoach Mill Manufacturing Co., Atlanta, Ga., report business excellent.

**RAHT BROS.**, of Tullahoma, Tenn., are increasing the capacity of their mill to 200 barrels.

**HENRY MERCORD** is building a large merchant flouring mill on the Geo. Dill point at Prescott, Wis.

**J. T. SMITH**, who is building a 75 barrel mill at Keno, Ore., expects to have it in readiness by Sept. 1.

**R. McCARROLL's** mill at Lucknow, Ont., rented by Mitchell Bros., was recently burned; loss \$4,500; no insurance.

It is reported that the National Linseed Oil Company will erect a large linseed oil mill and flax seed elevator at Duluth.

**J. B. LILLIE**, whose roller mill at Franklin, Tenn., recently burned, has let the contract for a new mill of 300 barrels capacity.

**CROW & YOUNG** have sold out their business at Alexandria, Tex., and are now located under a new firm name at Wichita Falls, Tex.

At Monroeville Ind., May 25, a large grist mill owned by D. S. Reidelshimer, was totally destroyed by fire. Loss, \$10,000; small insurance.

**JOHN SWANSON & SON**, millers at Hydetown, Pa., are in the hands of the sheriff. Their real estate is said to be heavily mortgaged.

At Adairville, Ky., May 29, Carroll & Barclay's flouring mill was struck by lightning and burned to the ground. Loss, \$20,000; insurance, \$12,000.

**DIED**, April 23, Hon. Casper Schmidt, of Oshkosh. He was a member of the Wisconsin Legislature and of the milling firm of Schmidt Bros. at Oshkosh.

The Wichita Roller Mill Co., composed of N. S. Crow, Lee Young and A. W. Mines,

has been chartered at Wichita Falls, Tex., with a capital stock of \$50,000.

The J. B. Allfree Co. have taken a contract from Tobrock, Aldenhagen & Co., Waymansville, Ind., to build them a 50 barrel mill, including all the Allfree machinery.

The Schumacher Milling Co., Akron, O., have been making some very extensive improvements to their water power by the construction of an immense tunnel and culvert.

H. A. McELMORE, Wm. E. Baird and others of Columbia, Tenn., have formed the Columbia Milling Co., with a capital stock of \$30,000 and will build a 250 barrel roller mill.

JUNE 1st, Riley Bowser, a young man, employed at E. J. Sherman's flour mill at North Columbus, O., was drowned in the Olentangy river while repairing the mill-dam.

Marion, Ind., offers \$50,000 dollars in cash, thirty-five acres of land and a natural gas well for the location at that place of the Toledo, St. Louis and Kansas City machine shops.

The Devine Mfg. Co., of Devine, Tex., with a capital stock of \$10,000, has been formed to operate a grist mill. The company consists of Byrd Smith, W. A. Cole and J. H. West.

The flour mill at Adrian, Minn., recently purchased by Gilbert & Randall, together with a barn and about 400 bushels of grain which was stored in the mill, was burned; loss about \$16,000; insurance \$2,000.

NEAR Logansport, Ind., May 21, the large flouring mill owned by Kittmiller & Cunningham was entirely destroyed by fire. There was a small insurance, but it is learned that the loss will reach fully \$10,000.

F. F. MARCY, of Palmer, Mass., is to build at once an extensive addition to Cutler & Co.'s mill, to be used for storage and for bagging oats. The new quarters being built for the post-office are nearly ready for occupancy.

DAVIS & CUMMINGS, proprietors of the Rome Foundry and Machine Works, Rome, Ga., say that business was never better than it is this season and that they are meeting with a lively demand for turbine water-wheels.

The Ennis Roller Mill Co. has been formed at Ennis, Tex., with a capital stock of \$15,000, to build a 100 barrel roller mill, which is now in course of construction. The incorporators are J. Baldrige, J. W. Weatherford, P. Freeman and others.

J. M. GAMBILL & Co., of Roanoke, Va., are building a grain elevator of 75 bushels capacity. They will also build a roller mill for the manufacture of flour, feed and meal; the daily capacity will be 100 barrels of flour, 1200 bushels of feed and 200 bushels of meal.

The J. B. Allfree Co. have taken the contract for W. J. Meyers & Bro., of Princeton, Ky., to build a 75 barrel mill at Troy, Tenn., including the Keystone Rolls, "Success" Bolters, Allfree Purifier, "Climax" Bran Duster, etc., etc. Also an Allfree Automatic Engine and complete power plant; also corn meal outfit of the Allfree manufacture.

NEAR Simcoe, Ont., May 31, the Lynn Valley grist mills and grain storehouse owned by A. McCall and run by Dalrymple & Shrubsole, were burned. A large quantity of flour and feed was destroyed, but was fully covered by insurance. The mill had been lately rebuilt and was worth \$8,000; insured in Royal Canadian and Canadian Millers' Mutual for \$5,500.

Wm. F. SNOOK, formerly head miller in the "Daisy" roller mill, and later with Messrs. Faist, Kraus & Co. in the "Duluth" roller mill, Milwaukee, Wis., has accepted a position with Kehlor Bros. of St. Louis, Mo., and is at present in charge of their mill at Edwardsville, Ill. Messrs. Kehlor Bros. are to be congratulated for having secured the services of so experienced and able a man.

At Ashfield, Ill., May 27, the large elevator and mill owned by Mrs. Sarah Richter and managed by Geo. Richter & Company was totally destroyed by fire. The building, along with the grain and office, was valued at \$10,000. There was \$1,600 insurance on the building in the London and Lancaster and Queen Company. It is supposed the fire originated from a spark from a railroad engine.

The Cochrane Roller Mill Company of Escanaba, Mich., of which Valancy E. Fuller is President, has absorbed the W. F. Cochrane Roller Mill Supply Co. of Dundas, Ont. This was not an unlooked for event, as the former President of the Canadian Co., V. E. Fuller, the Superintendent, F. H. Brewster, and the Chill Roll Maker, Edward Condor, now occupy similar positions at Escanaba, in the American Co. We do not know whether the Dundas shops will be operated by the American Co. or not, but we understand that the Cochrane train of rolls will be manufactured and supplied to the millers in Canada.





## PERFORATED SHEET METALS

FOR ALL KINDS OF

### GRAIN CLEANING MACHINERY

Used in Elevators, Warehouses, Flour and Rice Mills, Cotton and Linseed Oil Mills, Etc., Etc., Etc.

### ROLLING SCREENS—ROUND AND HEXAGON.

Iron and Zinc for Rolling Screens, Corn Screens, Grain Dryers, Perforated Floors for Kilns used in drying Oats, Corn, Fruit, etc. Smut Mill Jackets of all kinds and sizes made to order. We will RENEW YOUR SIEVES for Oat Separators, Receiving Riddles, Corn Screens, etc., at short notice.

## THE HARRINGTON & KING PERFORATING CO.,

Nos. 224 & 226 North Union St., CHICAGO.

## Condemnation of Competitors IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

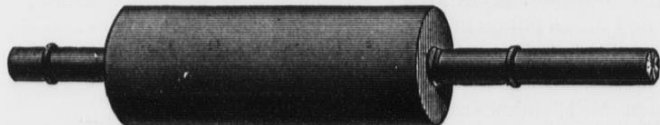
823 SECOND ST.,  
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A. B. BOWMAN.

## Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated



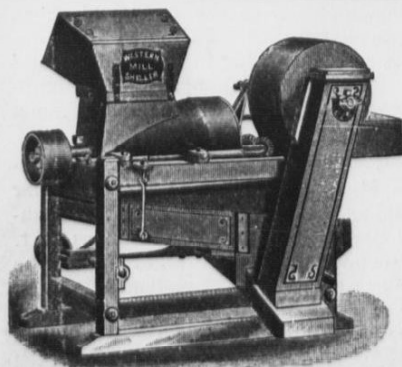
## ANSONIA ROLLS FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

Mention this paper when you write to us.



## "WESTERN" MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

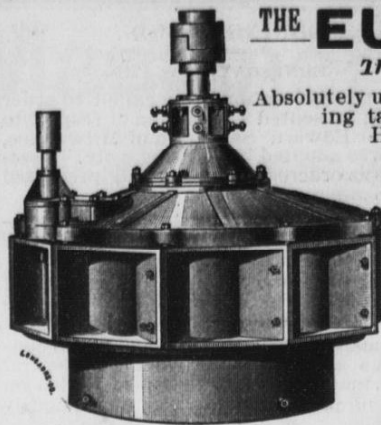
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

## UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



## THE EUREKA TURBINE.

The Best Part-Gate Wheel Ever Built.

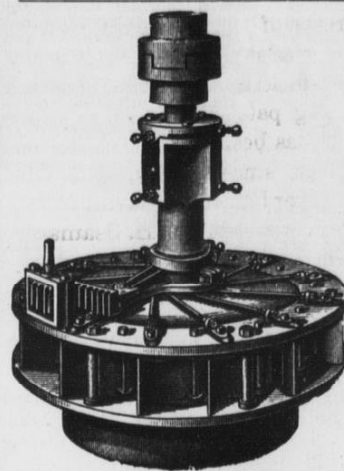
Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.				
	Full Gate.	3/4 Water.	1/2 Water.	1/4 Water.
24" Wheel.....	.8436	.8416	.8202	.8002
24" Wheel.....	.8206	.7910	.7700	.7003
24" Wheel.....	.8078	.7578	.7275	.6796
34" Wheel.....	.8000	.8011	.7814	.6850

No other turbine ever approached the above figures at part-gate. We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

The Allentown Foundry & Machine Co.,  
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## Leffel Water Wheel,

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio or 110 Liberty St., New York.

## A CARD.

THE AVERY STAMPING CO., of Cleveland, O., successors to the Avery Elevator Bucket Co., of the same city, have lately purchased of W. H. Caldwell of Chicago, Ill., (the patentee and manufacturer of the celebrated Caldwell Steel Screw Conveyor.) his patents for Corrugated Elevator Buckets and other sheet metal goods, whereby any article manufactured from sheet metals may be made stiff and rigid, thereby doing away with cross braces, that are found in the old style Elevator Buckets, and which interfere so with the filling and emptying. This corrugation will be a great benefit and improvement, especially in Elevator Buckets, as ear corn, slag or any rough or ragged material can be dipped up easily, with less friction on a full load, as there are no braces to catch or seams to give way, that cause spilling material down the back leg, as all elevator men well know, braces retard the emptying of Elevator Buckets.



This bucket will make a great saving in time, labor and expense, while doing twice as much work as buckets heretofore used. For large Elevators, as in Chicago, Buffalo, Duluth and in many of the other principal grain ports, where speed and quick work is specially desired, this new bucket will take the place of the old style now used. They will be made of steel, perfectly seamless, without rivets, solder or seams, any parts of which are so liable to give away. Another great feature is that they will not be expensive in price, and will outwork three of the ordinary buckets now used. The sizes will be 10x5 1/2, 11x6, 12x6 1/2, 14x8 1/2, 16x8 1/2, 18x7, and 20x7, made of suitable gauges of steel, giving them with the corrugation, the full strength and stiffness desired. These buckets will be considerable lighter than the common ones now used, while they will be much stronger, and parties interested in improving their mills and elevators, desiring samples and prices, can have same by applying to the Avery Stamping Co., or any first-class mill furnisher or mill-supply house, as our goods have a world-wide reputation, and every mill furnisher can furnish same. Freight rates on our buckets are fourth-class, while other makes are first-class again a great saving to the buyer.

N. B. Please bear in mind that we have the only patents ever granted in the world for Seamless, drawn, stamped, pressed and forged Elevator Buckets, also the only patents ever granted for corrugated buckets, troughs, etc. On small sizes of our Elevator Buckets, taking the weight, boxing, cartage, freight into consideration, it is advisable to ship by express so far as possible to secure prompt receipt of goods.

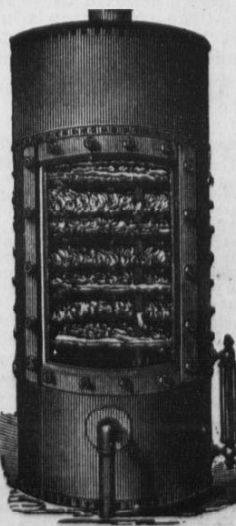
## Stilwell's Pat. Lime Extracting HEATER —AND— FILTER COMBINED.

Is the only Lime Extracting Heater that will Prevent Scale in Steam Boilers Removing all Impurities from the water before it enters the boiler.

Thoroughly tested. Over 3,000 of them in daily use.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.

Illustrated Catalogues.  
STILWELL & BIERCE MFG. CO.  
DAYTON, OHIO.



## "TRIUMPH" CORN SHELLER

CAPACITY  
3000 BUSHELS PER DAY.

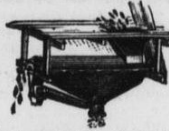
Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MFG. CO.

No. 12 Fourth St., Painesville, O.

(Please mention this paper when you write to us.)



## EDW. C. ORDWAY, MILL CONTRACTOR AND FURNISHER

—OF—  
ROLLER MILLS, GRAIN ELEVATORS,

New Process Corn Meal Mills, etc.

Plans and Specifications on Short Notice. HARTLAND, WIS.

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Manufacturers and Dressers of

## MILL PICKS

167 W. Kinzie St.,  
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Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canada, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is manufactured expressly for me at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every State and Territory in the U. S. and Canada. Send for Circular and Price List.

Your Plant will be Im-

## THE RELIANCE Safety Water Columns.

They obviate all damage from either too much or too little water, and cost but little more than the common outfit.

Every Gauge Warranted.

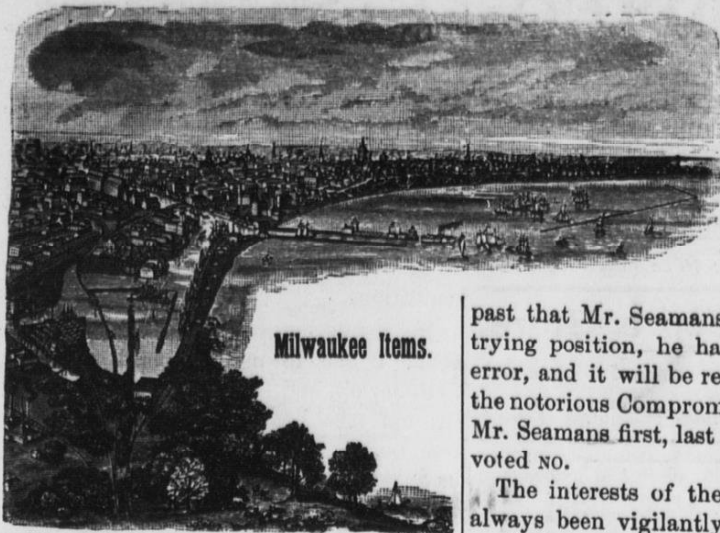
Send for Illustrated Price List.

The Reliance Gauge Co.,

863 Sheriff St.,  
CLEVELAND, OHIO.







Milwaukee Items.

Mr. F. R. Howell, Buffalo, N. Y., had on exhibition one of his latest improved machines.

HUGO BROICH, the Milwaukee artist, (120 Grand av.) showed commendable enterprise in taking a group photograph of the Convention as they appeared after the banquet at Soldiers' Home Grounds.

THE PRINZ & RAU Mfg. Co. of this city, did all in their power to make things pleasant for our guests, a number of whom visited the Phoenix Mills to see their large size grain cleaning machinery in operation.

AMONG the omnipresent delegates to the Convention was our old friend, George Washington Gardiner, of the well-known firm of N. Y. commission dealers, Messrs. J. J. Blackman & Co. His face is familiar to the majority of the millers in this country.

"DAMON AND PYTHIAS," otherwise known as Alex. H. Smith and Geo. Bain, ably represented the milling interest, not only of St. Louis and vicinity, but all of that section of the country embraced in the jurisdiction of the Central Millers' Association.

THE Committee on Reception and Entertainment, consisting of millers, grain and flour commission dealers and agents of transportation companies, deserve all praise from their fellow citizens for the perfect manner in which they performed their pleasant but laborious duties.

H. J. DRAL, of the Deal Specialty Co., Bucyrus, O., had an elegant display of millers' specialties, in the lobby of the Plankinton House. This is the only firm in America that makes a business of this kind. This line of goods includes every thing from a plain flour-trier to a baker's oven or a diamond set of millers' jewelry.

Mr. WM. J. LANGSON, Secretary of the Milwaukee Chamber of Commerce, has just issued his annual report for the fiscal year, of the Chamber of Commerce, ending April 2, 1889. It is complete in every department, which is saying a great deal, but an inspection of its pages will verify our our assertion. In another place we make an extract of interest to the trade, entitled "MILWAUKEE FLOUR."

THE day after Edward Sanderson's death the millers of this city met and adopted the following resolutions:

Whereas, the Honorable Edward Sanderson has obeyed that supreme mandate to which one and all must sooner or later respond, we, his trade business friends and colleagues, desiring to give expression of our sorrow at his early demise, and our respect and esteem for him, have met in formal meeting and

Resolved, That by the death of Edward Sanderson the millers of Milwaukee are deprived of the friendship and counsel of one of their most respected brothers; one whose always well-expressed opinions commanded their attention; one whose marked ability in prominent and honorable positions was so particularly pronounced that it may be truly said—"a leader has been taken;"

Resolved, That as a token of our respect for our departed associate, and of the high esteem we held him in, we attend his funeral in a body;

Resolved, That the secretary transmit these resolutions to the afflicted family.

It is with much pleasure that we record the re-election of Mr. S. H. Seamans of Milwaukee, as Secretary of The Millers' National Association, and also as mem-

ber of the Sub-Executive Committee. It is not in us to speak words of fulsome praise of any one, but we cannot restrain ourselves from saying that, in the many years

past that Mr. Seamans has occupied his trying position, he has NEVER made an error, and it will be remembered that, in the notorious Compromise made long ago, Mr. Seamans first, last and all the time, voted NO.

The interests of the Association have always been vigilantly guarded by him, and he has doubtless made some powerful enemies among patent-right men. His motto always has been: "Right wrongs no one." We can sincerely say, that The Association never had or can have a truer, more faithful servant than S. H. Seamans. "He has been tried by fire and found not wanting."

THE Millers' National Association for 1889 have concluded a successful convention in this city. Numerically the number of attendants was not large, but in its representative capacity, its delegates represented the interests of mills with an aggregate capacity of many hundred thousand barrels of flour. In another portion of this issue the UNITED STATES MILLER AND MILLING ENGINEER has the pleasure of making the first full report published, to the millers of this country. It is not a *verbatim et literatim* report, but contains, we believe every salient feature of the proceedings. The weather was propitious as we promised it should be, and some of our visitors said that here they saw the first streak of sunshine they had seen for a fortnight. The results of the Convention will also let sunshine into the paths of many millers throughout this broad land.

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Wednesday afternoon from noon to midnight was spent almost entirely by visiting millers in social enjoyment. At noon a tally-ho coach and seventy-five carriages decked with National Flags drove up to the Plankinton House, and were filled quickly with guests, and local millers, mill-furnishers, members of the Chamber of Commerce, railroad and steamship officials, mayor and city officers, and members of Congress and State officers. The drive was along the lake shore to North Avenue, thence on North to Eleventh—to Chestnut—to Ninth—to Grand Avenue and thence to the Soldiers' Home grounds, where an elaborate lunch with a *quantum suf.* of Mumm's Extra Dry and Garcia Perfectos, was had. After lunch a group picture was taken, and after an hour of pleasant leisure the party again took to the carriages and proceeded to return via National avenue, to the Reliance Works of Edw. P. Allis & Co., where many stopped to go through the great mill-building establishment. After due inspection the party returned to the hotel. Visitors were provided with tickets to the opera—"The Merry War" at Schlitz Park. Many attended and enjoyed not only a good performance, but as to weather as fine and balmy an evening as there ever was anywhere. After the opera our reporter, after handing in his copy retired to rest, and his example was, no doubt, followed by all the delegates, as the police have reported no nocturnal disturbances.

#### MILWAUKEE FLOUR.

[From Secretary Langson's 1888-89 Report of the Trade and Commerce of Milwaukee.]

Receipts and production of flour at Milwaukee during the year 1888 amounted to 3,848,594 barrels—an increase of 283,591 barrels over the amount received and manufactured in 1887. The total shipments as reported by lake at the Custom House and by rail as reported to the Chamber of Commerce were equivalent to 3,410,289 barrels, an increase of 99,776 barrels, leaving about 200,000 barrels unaccounted for, after making due allowance for local consumption.

The total movement, exclusive of through shipments by rail, was as follows:

	Barrels.
Total receipts billed to Milwaukee	2,427,386
Output of Milwaukee mills	1,421,258
In store beginning of year	159,871
Total supply	3,998,465
Total shipments	3,410,289
In store end of year	79,000
Local trade and unaccounted for	512,176
	3,998,465

The direction of shipments of flour from Milwaukee during the year 1888 will be seen by the following statement:

	Barrels.
By lake eastward	1,818,268
By lake to Chicago	1,187
By lake along shore	668
By transit lines across Lake Michigan	1,167,660
By railroad via Chicago	418,418
By railroad west and north	9,088
Total shipments	3,410,289

The output of flour by Milwaukee mills in 1888 shows an increase of 206,610 barrels over the production of the preceding year. The capacity of all the large mills was materially increased, and had it not been for the interruption of the export trade by the advanced price of wheat based on the unfavorable results of the last harvest in the Northwest, a much larger amount of flour would have been manufactured by our millers. The present daily capacity of the mills of Milwaukee is 9,100 barrels—an increase of 2,100 barrels over the capacity of the same mills in 1887.

Milwaukee holds the third position among the milling centers of the United States, and should the progress of the last few years be continued she may at no distant time win the title to the second place.

The report of the St. Louis Merchants' Exchange credits Buffalo with the manufacture of 1,500,000 barrels of flour in 1888. This is an extraordinary mistake, as the exact amount of flour manufactured at Buffalo, according to the report of the Board of Trade was 644,563 barrels. Including with Buffalo, Niagara Falls, Akron, Hamburg, Tonawanda, Williamsville and Lockport the total output was 1,458,508 barrels, but to credit this amount to Buffalo is about as near correct as it would be to credit Milwaukee with all the flour manufactured in Wisconsin.

The following statement shows the manufacture of flour at the principal milling points in each of the past three years:

	1888.	1887.	1886.
Minneapolis	7,056,680	6,379,264	6,168,000
St. Louis	2,016,619	1,985,717	1,807,956
Milwaukee	1,421,258	1,214,648	952,802
Buffalo	644,563	637,885	706,384
Baltimore	500,870	496,244	540,567
Niagara Falls	619,093		
Chicago	435,100	514,870	494,789
St. Paul	250,000	316,000	194,500
Toledo	250,000	305,000	310,000
Detroit	255,000	255,000	296,500

The milling business of Milwaukee was fairly profitable, notwithstanding the adverse conditions that existed during a part of the year. The sharp advance in the price of wheat shortly after the unfavorable results of the harvest in the Northwest became apparent for a time stimulated the home demand for flour and prices rose \$2.00@\$3.00 per barrel within two months. The advance, however, being in a large degree the result of manipulation of the wheat markets throughout the Northwest, was not freely responded to by either Eastern or foreign markets and had a very unfavorable effect upon the milling business during the latter part of the year. The export trade fell off in proportion to the advance in prices, and the home markets having been largely stocked while the advance continued, the demand from this source also became very slack, and the milling interest found it necessary to largely restrict the manufacture of flour. Prices of wheat throughout the Northwest having declined so as to be more nearly on an equilibrium with the rest of the country, the milling business will soon recover from the partial paralysis from which it has lately suffered.

In the last ten years the milling business of Milwaukee has increased three-fold and in thirty years ten-fold.

Production of Flour by the Mills of Milwaukee During the year 1888, and Daily Capacity of Each Mill at the end of the year.

	Output 1888.	Daily Capacity.
Eagle Mills—J. B. A. Kern & Son	206,175	2,000
Phoenix Mill—E. Sanderson & Co.	350,000	1,750
Daisy Roller Mill—F. A. Faust, Kraus & Co.	304,143	1,500
Jupiter Mill—B. Stern	271,500	1,500
Reliance Mill—C. Manegold & Co.	138,000	500
Gem Milling Co.	73,400	600
Other Mills not in operation	78,500	350
Total	1,421,258	9,100

#### A VICTORY FOR THE KNICKERBOCKER COMPANY.

THE "CYCLONE" IS ALL RIGHT.

AFTER three years' litigation in the patent office the Knickerbocker Company, of Jackson, Mich., has finally secured the issue of its patents upon the broad features of the dust collector which is known to the trade as the "Cyclone." Mr. O. M. Morse, the mechanical expert of the Knickerbocker Company, in 1885-6 invented and completed this dust collector which operates upon a principle entirely unknown prior to that time.

As soon as this device was offered to the trade, which was done early in 1886, it proved to be a machine which the trade wanted, and a large demand for it sprang up. As the machine was put upon the market before the issue of their patents, the Knickerbocker Co. left itself

open to the attack of imitators, who were not slow to take advantage of this weakness, and a number of rivals entered the field as competitors. Most of them, also, entered the patent office with claims for either real or fancied improvements, and under the patent laws of the United States a large number were placed in interference with the claims of the Knickerbocker Company, and a very intricate and almost interminable series of litigations arose.

Time, however, which solves most things, has in this case brought to a conclusion these varied contests, and upon the 14th of May last, the full, broad claims were issued, Mr. Morse thereby being declared the inventor.

This form of dust collector is not only for flouring mills, which is the principal feature of the Knickerbocker Company's manufacture, but for a variety of other purposes, including the collection of shavings, etc., in wood-working establishments. The principal manufacturers of dust collectors for the last mentioned purpose are the Allington & Curtis Mfg. Co., of East Saginaw, Mich., and the Chicago Exhaust & Blow Pipe Co., of Chicago, Ills., both of whom have taken licenses under the Morse patents.

Until now the Knickerbocker Company has been powerless to protect itself, but the issue of these patents places it in a position to take the proper steps to enforce its rights and prevent further infringement.

#### ELEVATOR FOR PRIVATE DWELLING.

The ingenious plan proposed by a Berlin inventor, of a simple and inexpensive elevator for private dwellings in place of the ordinary staircase, has attracted some attention as a long-felt desideratum. It is on the principle of the inclined railway, and the motive power is furnished by the city water, which is applied in the cellar; each flight has its separate chair, so that, for example, one person can ascend from the first to the second story while another is on his way from the second to the third, or still another is descending from the fifth to the fourth. The chair, being only of the width of a human body, requires but little space, and still leaves a free passage for any one who may wish to walk up or down, instead of riding. It is set in motion by a simple pressure upon one of its arms, while after it has been used it slides back to the bottom step, its descent being regulated in such a manner that the carrying of a passenger is a matter of entire safety. The motive power is, of course, more or less expensive, according to the cost of water, this being, it is stated, in Berlin, at the rate of a little more than one-tenth of a cent only for each trip.

#### THE WORLD'S CASH AND RAILROADS.

It is remarked that all the money which the world possesses to-day would only purchase one-third of its railways, since the railroads in the world are worth nearly thirty billion dollars, about one-tenth of the total monetary wealth of the civilized nations, and over one-quarter of their invested capital. In comparison with this sum the amount of money invested in banking throughout the entire world is but a trifle. The railroad business is one which is increasing at an almost incredible rate of speed. In 1875 the world's railways aggregated 185,000 miles, while in 1885 there were over 300,000 miles of railroad, thus showing an increase of 115,000 in ten years, or, on an average, upwards of 11,000 miles a year. When it is considered that this would mean the laying each year of railway enough to reach nearly half around the earth the magnitude of the increase can be in a measure appreciated.—London Anglo-American Times.

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## SCALE IN BOILERS.

If there is one thing more than another that the average engineer is careful with, it is the use of boiler compounds. With an open exhaust heater and an over-worked boiler, and using water from a drilled well sixty feet deep in limestone, I have had to be rather careful to avoid scale and foaming. I offer some notes from my experience under the above conditions.

In using compounds containing sal soda, I had to use 40 per cent more cylinder oil, and this invariably reacted, through the heater and feed water, on the boiler, and produced foaming. I have used six compounds, warranted to cure foaming with above results. The compounds were tannic acid and soda.

Changing to the use of crude oil, I found that the volatile parts went over to the engine, and I saved 10 per cent cylinder oil over when using nothing, and 50 per cent over the use of sal soda. There is a peculiarly easy manner of making steam that is very different from the same boiler using sal soda. The results on scale are as follows:

In changing to a different solvent the results for a few runs were very good, and then it seemed to lose its virtue while using double quantity; result, foaming. With crude oil used continually I have had scales from 1/4 inch thick, but never any thicker, as it came off clean and was very porous. I prefer oil to any acid or alkali solvent. For cleaning a scaled boiler I would recommend alternate use of oil and sal soda, but the remedy is heroic. If the boiler is not clean in two weeks I miss my guess. I have tried kerosene and found it too volatile to be of value in a limestone district. In summing up the results, I believe:

First. With an open exhaust heater use only the best cylinder oil, which should be at least 80 per cent petroleum.

Second. If the crude oil does not keep the scale all out, alternate one run with sal soda.

Now, I only offer this as my experience, knowing full well that the conditions are never absolutely the same.—American Machinist.

## FLEXIBLE STONE.

What is described as a geological curiosity is in the office of the acting chief clerk of the United States War Department Washington. It is a piece of stone weighing about 1 lb., 13 in. in length, 2 1/2 in. in width, and 1 in. thick. There is no doubt about its being a genuine stone, but it nevertheless possesses the flexibility of a piece of india rubber. When taken in the hand and shaken in the direction of its flat surfaces, it will bend backwards and forwards with a dull sound. The movement is more of a laxity in the adhesion, apparently, than an elasticity. When held horizontally by one end, the other will drop and remain in that position. With the two ends supported on rests, the free centre can be pressed 1/2 in. below the middle line. The movement is not confined to the one direction—in the place of the flat surfaces—but the entire stone seems to be constructed on the principle of a universal joint, with a movement perceptible in all directions under pressure. This is what is known as itacolumite, or elastic sandstone. It is stated that a whole mountain of it exists in southern Nevada, a short distance east of Death Valley. It is found in California, Georgia, and other localities in the United States.

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# FRENCH MILLING.

## THE HIGNETTE SHORT SYSTEM.

PERSONS specially interested in the milling industry were enabled to view at the Paris Exhibition of 1878 the different systems which are to-day in use. Even at that period considerable progress had been effected in the cleaning and grinding process, and there was fair ground for the hope that the centrifugal force disintegrators (*moulins batteurs a force centrifuge*) which were all more or less derived from the Carr system, might, when applied in a rational and intelligent manner to the grinding of cereals, and supplemented by other compressing machines, such as rollers and millstones, offer a great advantage, from an economical point of view, over roller mill installations, while they would be also calculated to make it more easy to utilize existing plants of stone-mills, and so place the new process of gradual reduction (*montre ronde*) within the reach of the greatest number. It was to the solution of this special problem that a French engineer, Mr. J. Hignette, who, after graduating in the well-known Technical Schools of the Arts et Métiers and Arts et Manufactures at Paris, had a brilliant career of twenty years as a deviser of improved wheat-cleaning machinery, and became a multifarious inventor. And this problem he claims to have solved by means of his disintegrator (*broyeur*), with which we shall be concerned further on. He maintains that by combining this apparatus with other milling machines, which have been improved by him, a new system of milling, superior in its results to these of any other process, will be obtained.

Mr. Hignette as far back as 1873 visited the Vienna Exhibition and carefully studied the Hungarian system in Budapest, introduced into France, but not without considerable opposition, break roller mills of chilled iron, as well as porcelain rollers, and since then he has made it his special care to reduce to a minimum number the machines entailed by the Hungarian or high grinding system, as well as to devise means for reducing the cost of their maintenance. He now claims that after long and laborious study he has solved the problem of attaining the advantages presented by gradual reduction and yet eliminating grooved rollers and their supplementary machinery, and has thus rendered the process more accessible to small mills with a very limited power at their command. Now-a-days six breaks are regarded as an indispensable part of an effective system of reduction, that is, if any quantity of middlings is to be obtained and bran is to be properly cleaned.

Now Mr. Hignette claims for his disintegrator that it will in one operation clean the bran as efficiently and yield the same proportion of middlings as the six breaks in question; and, admitting so much, it would follow that instead of six bolting operations we should need only one. Moreover it is claimed that this shortened system of milling gives results even more important in respect of the yield of fine flour, inasmuch as the reduction of the breaks gives much larger bran; hence the middlings are much easier to dress, and a much whiter flour is yielded. This is said to be more especially noticeable with the fine flour. The inventor of this process urges that it is a well established principle that the less the number of machines which can be employed for effectively separating the husk and germ on the one hand, from the starch and gluten on the other, the better.

The disintegrator, which is illustrated by Figs. 1 and 2, consists of two vertical axes A, A', each carrying a disc B, B', of a form partly flat and partly in the form of a truncated cone, such discs being of cast or wrought iron, steel or other suitable material. On each of these discs are cast or secured a series of round pins or studs, C, C', arranged in a circular manner. For grinding corn the pins are arranged in concentric rows on each disc, the spaces between same varying according to the kind of corn to be ground. As the shafts may be driven at great speed, the upper one is suspended on a conical part, D, entirely abolishing the pivot bearing at the lower end of such shaft. The lower shaft is supported by pivot E. The pivot consists of a conical piece of steel, E, which

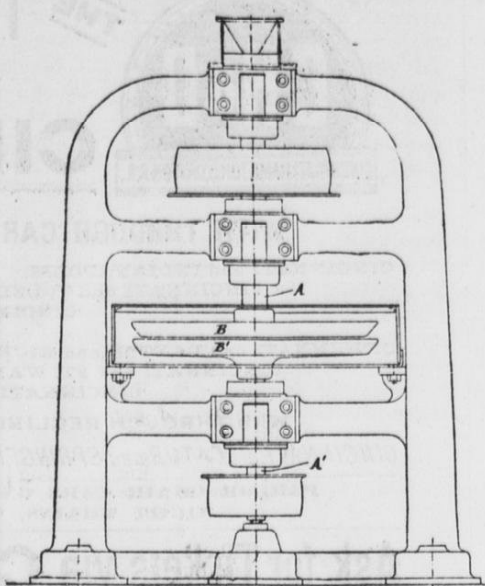


FIG. 1—HIGNETTE'S PATENT DISINTEGRATOR—Elevation

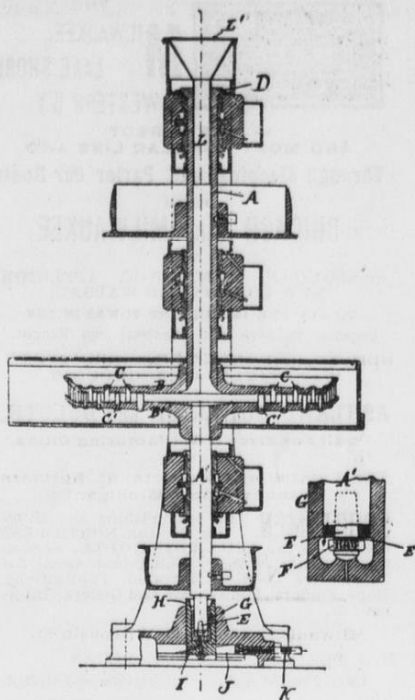


FIG. 2—HIGNETTE'S PATENT DISINTEGRATOR—Sectional End View

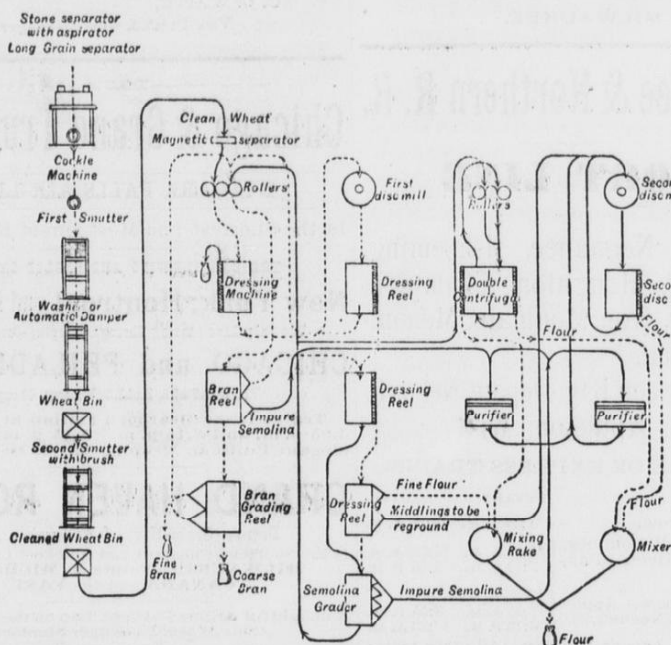


FIG. 3—DIAGRAM OF HIGNETTE'S SHORT SYSTEM OF FRENCH MILLING.

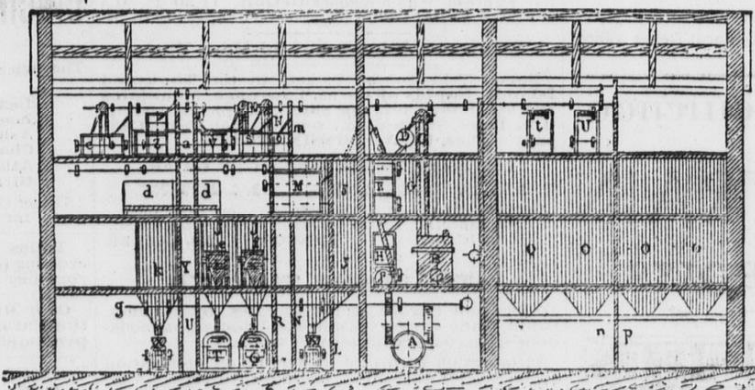


FIG. 4—LONGITUDINAL SECTION OF A HIGNETTE SHORT SYSTEM MILL.

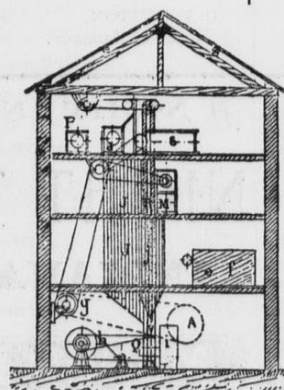


FIG. 5—CROSS SECTION.

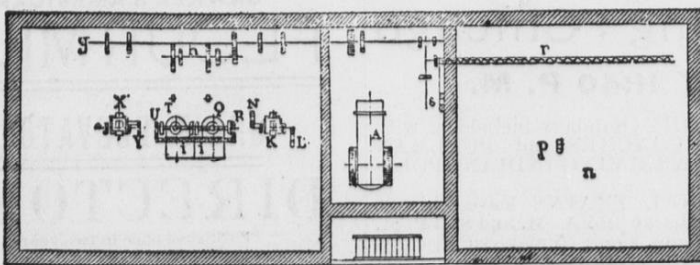


FIG. 6—PLAN OF GROUND FLOOR.

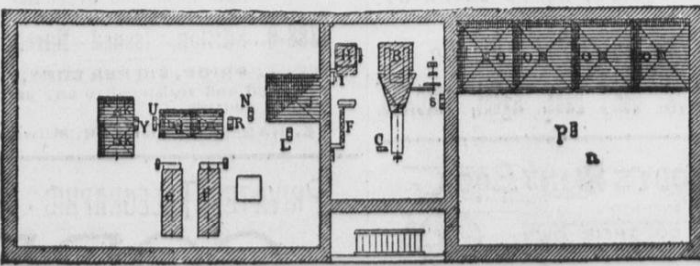


FIG. 7—PLAN OF FIRST FLOOR.

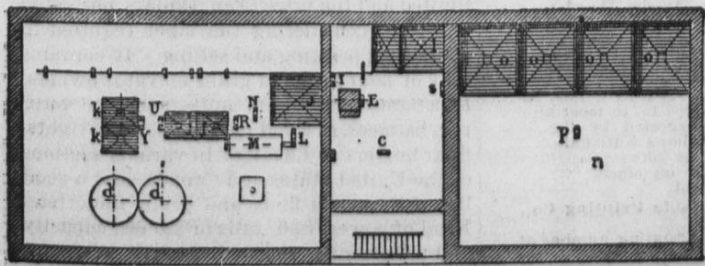


FIG. 8—PLAN OF SECOND FLOOR.

is placed by hand in a recess of corresponding form provided in the lower end of shaft. The conical pivot has a screw-threaded part, E', and it will be understood that to withdraw the pivot it suffices to turn a nut, F, thereon, which by binding against the shaft, will exert a pressure in the direction of the arrow and instantly force the pivot out. The toe step is composed of a piece of bronze. To renew the same, it is only necessary to drive it

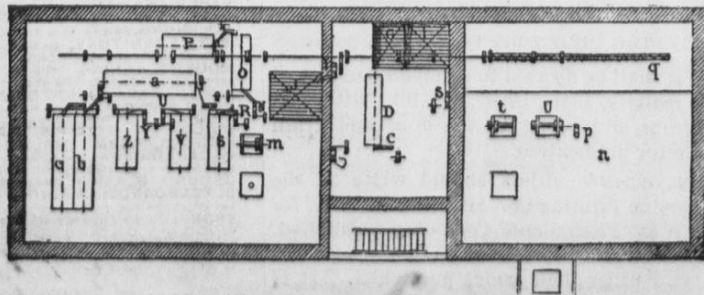


FIG. 9—PLAN OF THIRD FLOOR.

out by a rod introduced into the hole I, and lightly strike such rod.

In order to rectify the wear of the conical part of the upper bearing and so avoid the approach of the pins of the top and bottom discs, as well as to enable the two plates to be adjusted as desired, the toe step is mounted on an inclined plane, J, forming a wedge which can be moved by a screw, K, so as to permit the bearing and consequently the lower disc, B', to be raised or lowered with ease. The material to be ground or crushed is fed between the discs, B, B', through the central tube L, the top of which is funnel-shaped, as shown, and can be closed by a plate, L', to prevent the entrance of air when this is desired, and reduce the power required to drive the apparatus.

It is claimed that the Hignette disintegrator will separate the bran in large flakes, while it will yield up the germ thoroughly clean and entire—not flattened as is the case in the roller process—so that it is most easy to sift out with the bran. The proportion of triturated bran is said to be exceedingly small—hardly more than two per cent. Then again it is held that this shortened system of milling scores another point in requiring a lesser motive power than is required by any other process. Mr. Hignette claims that the miller who uses his system may if desired, entirely dispense with millstones; but on the other hand, these disintegrators may be readily used with stones, which latter may be well utilized in the reduction of middlings. In installing the Hignette system a great economy of floor space is claimed as compared with stones and rollers. It is likewise claimed that this disintegrator has no appreciable wear, so that the dressing of millstones or metal discs is done away with, as also the re-cutting of grooved rollers; any workman, it is held, is capable of keeping these machines in order and attending to their lubrication. Roughly speaking, the power required for cleaning and treating 100 kilos (220.466 lbs) of wheat is 6 horse-power, while the yield from 100 kilos of cleaned wheat is tabulated by M. Hignette as follows:—

	per cent.
Fine flour.....	68 to 70
Seconds and Thirds.....	8
Regrinding.....	8
Fine bran.....	2
Coarse bran.....	10
Waste.....	2
	100

It will be noted that this estimate of yield takes no account of the well-known black or dark flour.

With these machines it will be sufficient to have a mere smooth roller mill (*compreneur*), such as is found in most of the old-fashioned stone mills, the object of which is the mere splitting and flattening up to a certain point of the wheat berry without crushing it.

This same apparatus will be available for the treating of the middlings and this is an inestimable advantage to little mills in which the small amount of power and room is an effectual bar to any remodeling which calls for much machinery.

M. Hignette remarks that millstones, regarded as machines for treating middlings, are open to the great objection of cutting up the particles of bran which adhere to those products, while the grinding or conversion of middlings by rollers demands a considerable power, and entails a tedious process of bolting, as well as a series of operations which have the effect of pulling the gluten to bits and killing the flour, so that the bread will have less flavor and go dry in a few days. He observes that in many of the country districts of France, where the demand is for large loaves which take several days to eat, roller flour is refused, because of its incapacity for making loaves that will keep fresh.

## THE "HIGNETTE" DISINTEGRATOR AS A MIDDINGS REDUCER.

The "Hignette" centrifugal disintegrator is, it is claimed, available for reducing middlings, according to their nature, in one or two excessively rapid operations, and that without heating. The products of these operations are said to be very even, and, although very fine, to be granular; they are estimated to be obtained at the rate of 40 to 50 per cent. in each operation, nor is their observed much difference in the result between

CONTINUED ON PAGE 71.





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Marinette, Green Bay,	3:10 P. M.	3:55 P. M.
Depere,		
Green Bay, Depere, Apple-	*7:35 A. M.	
ton, Menasha, Neenah,	7:55 A. M.	3:55 P. M.
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CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89, issued March 3, 1888, a work that should be in everyone's hand that desires to reach the entire flour and grain trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, miscellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth \$10,000 or more are indicated in thousands of cases.



dry and damp products. It is further contended that the bran and germ not being scarified by the smooth surface of the disintegrator, the work of the dressers and purifiers is much simplified, and M. Hignette claims that his system as compared with all other processes demands a considerably smaller amount of dressing surface to an equal capacity. The color of the flour is said to be much superior to that yielded by chilled iron or porcelain rollers. The advantages of this system are summed up as follows:

1. A lesser motive power than is required by any other system.

2. A larger yield and better quality of fine flour. Bakers are reported to be unanimous in praising the large yields in bread given by these flours.

3. The peculiar action of the machine, which is neither pulverizing nor cutting, but is simply percussive, and has, it is claimed, the effect of detaching the bran entire from the floury particles, and of giving a white flour free from specks.

4. The germ, not being scarified by the action of this centrifugal disintegrator, can also be eliminated with the bran.

It is further claimed that by this system the working staff is reduced to a minimum, and the wear of the machine is inappreciable, while the floor space is only half that required by other milling processes.

It has already been noted that M. Hignette claims for his system the great advantage of allowing millers to entirely dispense with stones, with their concomitant expenses of dressing. But should it be advisable to utilize an existing stone plant, the stones may, he adds, be easily applied either to the splitting of the berry or to the finishing of the middlings. A clearer idea of this system of milling will be afforded by the diagram, Fig. 3, and general plan of a mill with a capacity of 150 quintals of wheat (the quintal is 220.46 lbs.) in the 24 hours.

The mill consists of three distinct parts. The first serves for warehousing and storing the grain; the second contains the cleaning machinery; while in the third is installed the milling plant proper. The mill is supposed to work up to treat 600 kilos. of wheat in the hour. In the granary are four silos, O, O, O, O, which are fed either by the elevator or by the sack lifts, and these can be used inside as well as outside the building. In the second section, or screening-house, is to be found in addition to the semi-fixed steam engine located on the ground floor, a complete system of cleaning machinery, ranged in the following order. From the uncleaned wheat bin, fed by the elevator which receives the grain directly from the silos, the wheat descends to the first floor, and is there treated by sorters (*trieurs*) on Hignette's system, fitted with an aspirator, and intended to extract small pieces of earth and stones. On leaving this machine the berries are fed into a barley cylinder, and on being discharged are conveyed by an elevator to the third floor, where they are treated by a cockle cylinder, from which they pass down to the brush machine, fitted with a fan, on the second floor, and after leaving that machine are subjected to a damping, up to 2 per cent. of their weight, according to their degree of dryness. In the case of soft wheat, when necessary, an automatic damper is used, while hard wheat is treated by a washer. On the conclusion of the operations the grain is elevated and placed in sacks to dry as long as may be required before being shot into the bin which feeds the second brush machine, which is fitted with a double aspirator. From here the wheat is shot into the cleaned wheat bin.

The third section of the building is constructed for the reception of the of the various milling machines. It is in this part of mill that the "Hignette" disintegrator has the effect of simplifying the plant as its use is said to be equivalent to the suppression of five roller mills, the inventor claiming that one of his disintegrators will do the work of five successive breaks. Fig. 7 is a plan of the mill:

1. A 4-roller mill, two rolls being left smooth to act as laminators (*comprimeurs*) and two rolls being grooved to detach the bran.

2. A "Hignette" centrifugal disintegrator for wheat.

3. A "Hignette" centrifugal disintegrator for middlings.

4. A mill with three or four smooth rolls for finishing the middlings.

The purification is effected by two "Hignette" purifiers, one being used for coarse and the other for fine middlings.

The separation of the bran and the dressing is carried out by eight ordinary bolters and is finished by a double centrifugal dresser. A couple of "pastrys" complete the plant, which it will be seen is not large.

The milling process consists in the cleaned wheat being received by a bin on the second floor, from which it is shot into a hopper

placed at the head of the splitting cylinders. From these cylinders the berries are passed into a small bolter which eliminates a certain amount of waste products, which simply fall into sacks, while the split berries as they quit the bolter are taken to the centrifugal disintegrator, passing on the way over a magnetic incline, which arrests the iron particles that might get into the disintegrator.

The products of this machine are fed into a bolter which serves to separate the coarse bran, and this bran is taken to the bran detacher, which flattens it out and strips off any middlings that may still adhere; the product of this machine is taken to a bran dresser, which separates the middlings ready for the purifier, and if it be advisable to grade the bran, it is finally treated in a grading cylinder.

After its final separation from the coarse bran the meal is fed into a dressing machine, which takes out 15 per cent. of fine flour, while the tailings go to a dresser, which yields two per cent. of flour and fine middlings. This fine and second flour, which is remarkably white, will be about 17 per cent. of the weight of the wheat, but this will vary according to the kind of grain. The fine soft middlings from the purifiers are treated by the "Hignette" disintegrator, while the hard middlings are treated by the smooth roller mill, and the milling is finished by several operations in the two disintegrators. The products of the roller mill pass into the centrifugal, while those of the disintegrator are dressed in the ordinary bolters. The flour that results is taken to the "pastrys," whence it is drawn off in sacks to form the "farine flour," or mixture of all the qualities of flour.

It is hoped that this brief description will have afforded a key to the programme, which, it will be remarked, is of great simplicity. The system is susceptible of application to mills of all capacities, as the "Hignette" disintegrators are capable of treating, according to their size, from three hundred to several thousand kilos of wheat per hour.

Herewith we have given the longitudinal section and plans of floors in a "Hignette" short system mill. We are enabled here to give the names of the machines, etc., which are lettered in the drawings referred to as follows:—

## KEY TO ILLUSTRATIONS.

- |   |  |
|---|--|
| A—Semi-fixed Steam Engine.                    | a—Reel for Baker's Flour.  |
| B—Combined Grain Cleaner and Trieur Cylinder. | b—Middlings Conditioning Reel.   |
| C—Chain Bucket Elevator.                      | c—Middlings Grading Reel.  |
| D—Trieur Cylinder for round seed.             | d—Flour Mixers.  |
| E—Smutter.                                    | e—Purifier for Coarse Middlings.                                       |
| F—Damping Worm.                               | f—Purifier for Fine Middlings.   |
| G—Wheat Bin.                                  | g—Main Shaft.  |
| H—Brush Machine.                              | h—Shafting from which the Disintegrators are driven.                   |
| I—Elevator.                                   | i—Air Chamber for the Disintegrators.                                  |
| J—Cleaned Wheat Bin.                          | j—Disintegrator Feeding Bins.  |
| K—Roller Mill, with three rolls.              | kk—Roller Mill Bins.   |
| L—Elevator.                                   | l—Dirty Wheat Bin.   |
| M—Double Bolting Reel.                        | m—Sack-lifting Tackle for Mill.  |
| N—Elevator.                                   | n—Warehouse.   |
| O—Bran Reel.                                  | o, o, o—Silo Bins.   |
| P—Offal Divider.                              | p—Warehouse Elevator.  |
| Q—First Reduction Disintegrator.              | q—Worm for discharging Wheat into Silos.                               |
| R—Bran Elevator.                              | r—Worm Conveyor feeding Elevator (s).                                  |
| S—Reel Divider.                               | s—Short Elevator for conveying Wheat from Worm (r) to Dirty Wheat Bin. |
| T—Second Reduction (Disintegrator).           | t—Sack-lifting Tackle for inside of Warehouse.                         |
| U—Elevator.                                   | u—Sack-lifting Tackle for unloading from yard.                         |
| V—Reel for the Second Reduction.              |  |
| X—Roller Mill, with three rolls.              |  |
| Y—Bran Elevator.                              |  |
| Z—Double Centrifugal.                         |  |

[The illustrations in this article were made especially for the UNITED STATES MILLER AND MILLING ENGINEER.]

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A large New Hampshire cotton mill, within fifty miles of Boston, is going to adopt a novel system of electric power, which will be installed by the Sprague Electric Railway Motor Company. The corporation will use water power, which they control, which is about one mile from the mill and which they have been unable to use heretofore. The machinery is constructed and operated as follows: A bank of three water wheels geared to a jack-shaft. Next to a third wheel put on a large pulley to the jack-shaft, and between the pulley and second wheel is placed a coupling. From the pulley belt on to a short counter is carried a friction clutch pulley belted to a dynamo. When it is desired to operate a motor or to start lights in the mill anywhere, it is only necessary to throw the clutch into action. If lights and motor power are wanted when the mill is not in operation, the single wheel on the jack shaft is employed by starting the one wheel. This one wheel also drives fire pumps, runs elevators in a storage house several hundred feet from the main building, and operates a tramway. From the one dynamo these or any other motors located in the vicinity can be operated.

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## ACCIDENTS AND HOW TO DEAL WITH THEM.

**SWALLOWING COINS.**—If the coin is swallowed, there is seldom any danger. The best thing to do is to take a slight aperient, and in all probability it will pass away all right. If it enters the windpipe, medical aid should immediately be sought, and the only thing that could be done would be to seize the individual by the legs and hold him upside down, and strike him violently on the back, when it may be coughed up, (or rather down.)

**CROCHET-NEEDLES, ETC., IN THE FLESH.**—If possible, send the sufferer to a surgeon. With proper instruments he can take it out without much pain. If this is not possible, make certain on which side the hook is, then put an ivory bodkin, or any similar article, down the wound till it touches the hook, and draw both out together.

**A BITE FROM A MAD DOG.**—Rub the point of a stick of lunar caustic (nitrate of silver) into the wound for fully eight seconds, and do this as soon as possible, for no time is to be lost. Of course, it will be expected that the parts touched with caustic will turn black. If, unfortunately, it should chance that any one is bitten by a dog that is said to be mad, it is worth while to chain the animal up, instead of shooting it instantly; for if it should turn out that it was not mad—and a false alarm is frequently raised—the relief to the minds of all concerned is indescribable.

**SCRATCH FROM A CAT.**—A scratch from a cat is sometimes not only painful, but difficult to heal. When this is the case the limb should be bathed with a hot fomentation of camomile and poppy-heads, and a hot bread-and-water poultice applied, to be renewed with the bathing every four hours.

**A BITE FROM A VENOMOUS SNAKE.**—Suck the wound for several minutes. No danger need be apprehended from doing this, as venom of this sort does not harm when it passes into the stomach, but only when it gets into the blood. Of course the saliva need not be swallowed. Bathe the place copiously with hot water, to encourage bleeding, and tie a bandage tightly above the wound, between it and the heart. Procure medical aid as soon as possible.

**A BLOW ON THE HEAD CAUSING UNCONSCIOUSNESS.**—Lay the patient on his back and dash cold water on his face; loosen his dress, particularly about the throat; let him have plenty of fresh air blowing on him, and, in fact, treat him as if he had fainted. If, on regaining consciousness, he vomits, send for medical aid, as it is to be feared the brain is injured.

**SPRAINS.**—If a sprain is nothing more than a sprain—that is, if no bones are broken or put out—wrap the part in several folds of flannel which have been wrung out of hot water, and cover it with a dry bandage, and rest it for some days or even weeks. Entire rest at first, and moderate rest afterwards, are absolutely necessary after a sprain. If it is in the ankle, the foot should be raised as high as may be comfortable; if in the wrist, it should be carried in a sling.

**HOW TO STOP THE FLOW OF BLOOD.**—Housekeepers, mechanics, and others, in handling knives, tools, and other sharp instruments, very frequently receive severe cuts, from which blood flows profusely, and oftentimes endanger life itself. Blood may be made to cease to flow as follows: Take the fine dust of tea and bind it close to the wound; at all times accessible and easily obtained. After the blood has ceased to flow, laudanum may be advantageously applied to the wound. Due regard to these instructions would save agitation of mind and running for the surgeon.

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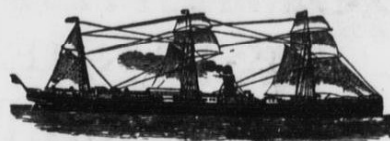


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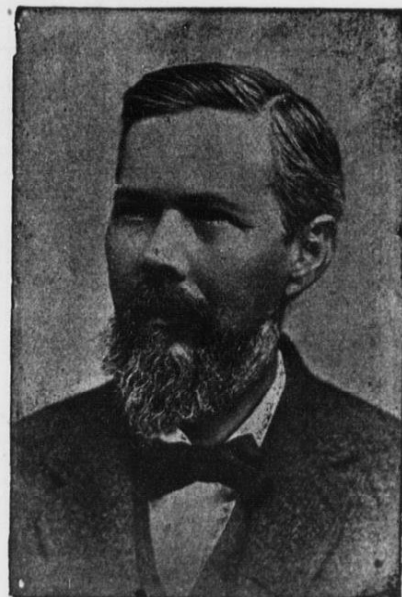


ITEMS FROM BEYOND SEAS.

THE "Berliner Muellerzeitung" Berlin, Germany, has changed owners and will hereafter be published weekly under the title of "Deutsche Mueller Industrie." Glück zu.

A PRIZE of \$600 has been offered by the Minister of Agriculture, Victoria, Australia, for a threshing machine that will thresh 80 bushels of peas in twelve hours.

THE present import duty on wheat in Portugal is \$4.44 per 480 pounds and on flour \$3.84 per 280 pounds.



ALEXANDER H. SMITH, Esq., of St. Louis.

[The poem below was presented to Mr. Alex. H. Smith, the well-known St. Louis miller, on the occasion of his fifty-sixth birthday, May 22, 1889, by his daughter Miss Mary B. Smith.]

## FOR YOUR BIRTHDAY.

A long life, and a happy life,  
And a life we all may share  
Is what we hope will come to you,  
With the silver in your hair.  
It matters not about the years,  
If the heart within be gay:  
There's nothing underneath the sun  
Can take your youth away.  
We have no costly gifts to bring,  
Our love for you to show;  
But if we gauged them by our wish  
What millions we'd bestow!  
So take our wishes for our deeds,  
And we'll ask you to begin  
To cash our promissory notes,  
When our good ship comes in.

Sawdust mixed with soft coal will result in a large saving of fuel. A large manufacturing concern at Bellow Falls, Vt., which formerly used 130 tons of coal a week now averages less than 25, because of the use of this mixture. So it is claimed.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.



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